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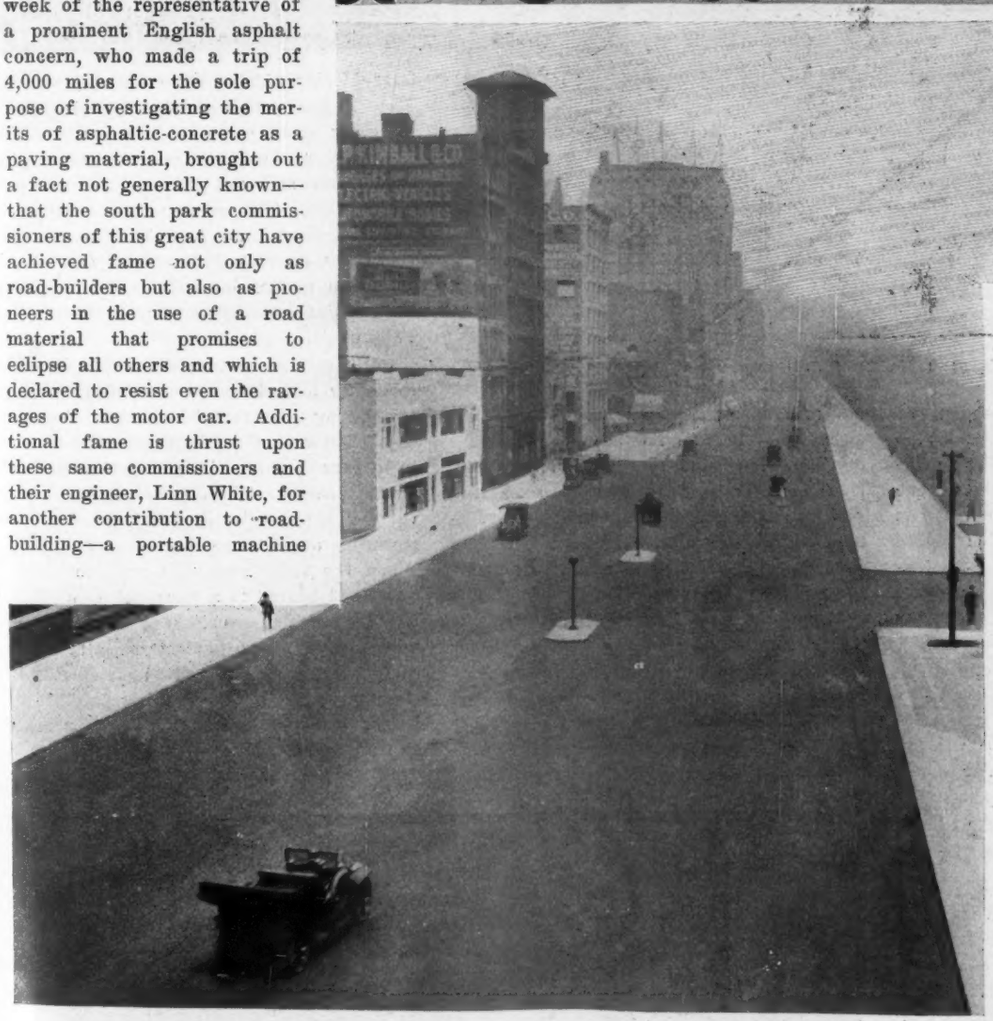
MOTOR AGE

SOUTH PARK ROADS ARE CHICAGO'S PRIDE

CHICAGO, July 18—The visit to Chicago last week of the representative of a prominent English asphalt concern, who made a trip of 4,000 miles for the sole purpose of investigating the merits of asphaltic-concrete as a paving material, brought out a fact not generally known—that the south park commissioners of this great city have achieved fame not only as road-builders but also as pioneers in the use of a road material that promises to eclipse all others and which is declared to resist even the ravages of the motor car. Additional fame is thrust upon these same commissioners and their engineer, Linn White, for another contribution to road-building—a portable machine that mixes the material and which proves a great time-saver through its ability to keep abreast of the workmen at all times because of its being mounted on wheels so it can be towed whenever desired. Linn White, engineer for the commission, and H. S. Richards, assistant superintendent, were the inventors of this machine.

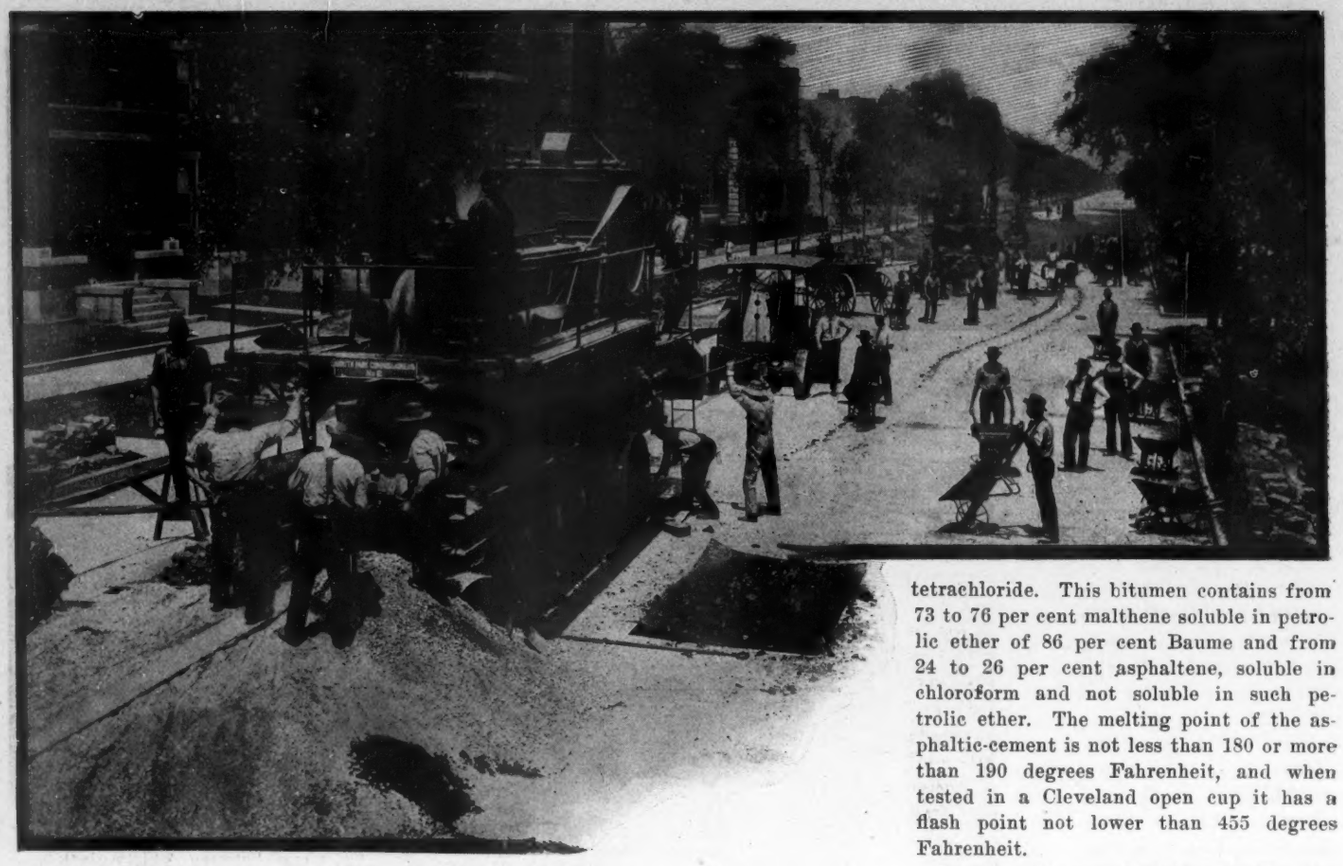


Inspiring View of Michigan Avenue, Chicago, Looking North from Twelfth Street, Since it Has Been Widened and Paved with Asphaltic-Concrete

This visiting Englishman learned much while he was here. He discovered that since 1908 the south park commissioners have laid 200,000 yards of this asphaltic-concrete, which is found on Michigan avenue between Thirty-ninth and Fifty-first streets, on Oakwood boulevard, in Washington park, some on Grand boulevard, while Chicago's grand promenade, the new and magnificent stretch in Michigan avenue between Thirty-ninth and Fifty-first streets, on Oakwood boulevard, in Washington park, some on Grand boulevard, while Chicago's grand promenade, the new and magnificent stretch in Michigan avenue to Twelfth street, is surfaced with this new discovery. Better still, the asphaltic-concrete laid 2 years ago in Grand boulevard between Forty-fourth and Forty-fifth streets looked as good as new—heat-defying and able to hold its own against the motor car. The commissioners are well satisfied with the way it is lasting.

Investigating other surfaces, he found that the south park commissioners had used bithulithic to the extent of 75,000 yards, or approximately 2½ miles, on Michigan avenue, Thirty-third street and South Park avenue; that this bithulithic apparently holds its own in cool weather, but that the heat causes it to rut deeply under the wheels of the thousands of motor cars that daily roll over it. He saw asphalt along Michigan avenue through that territory where motor car stores abound and which is more familiarly known as the row, and he went away convinced that Chicago really has something remarkable in this asphaltic-concrete.

Jotted down in the Englishman's note book was data furnished him by Engineer



SOUTH PARK'S ROAD-MAKING MACHINE IN OPERATION

White relative to the composition of this new pavement, which is made up of crushed stone, sand and asphaltic-cement. Nothing very new there, one might say, but the secret of it is in knowing how to proportion these materials and how to lay it. As defined by the specifications, the pavement proper consists of a layer of asphaltic-concrete made up of crushed stone, sand and mineral rubber asphaltic-cement of which the proportions are as follows: 55 per cent by weight of crushed stone; 36 per cent by weight of sand and 9 per cent by weight of asphaltic-cement. The thickness after compression by rolling should be generally 2 inches, but in the case of light traffic it may be made 1½ inches.

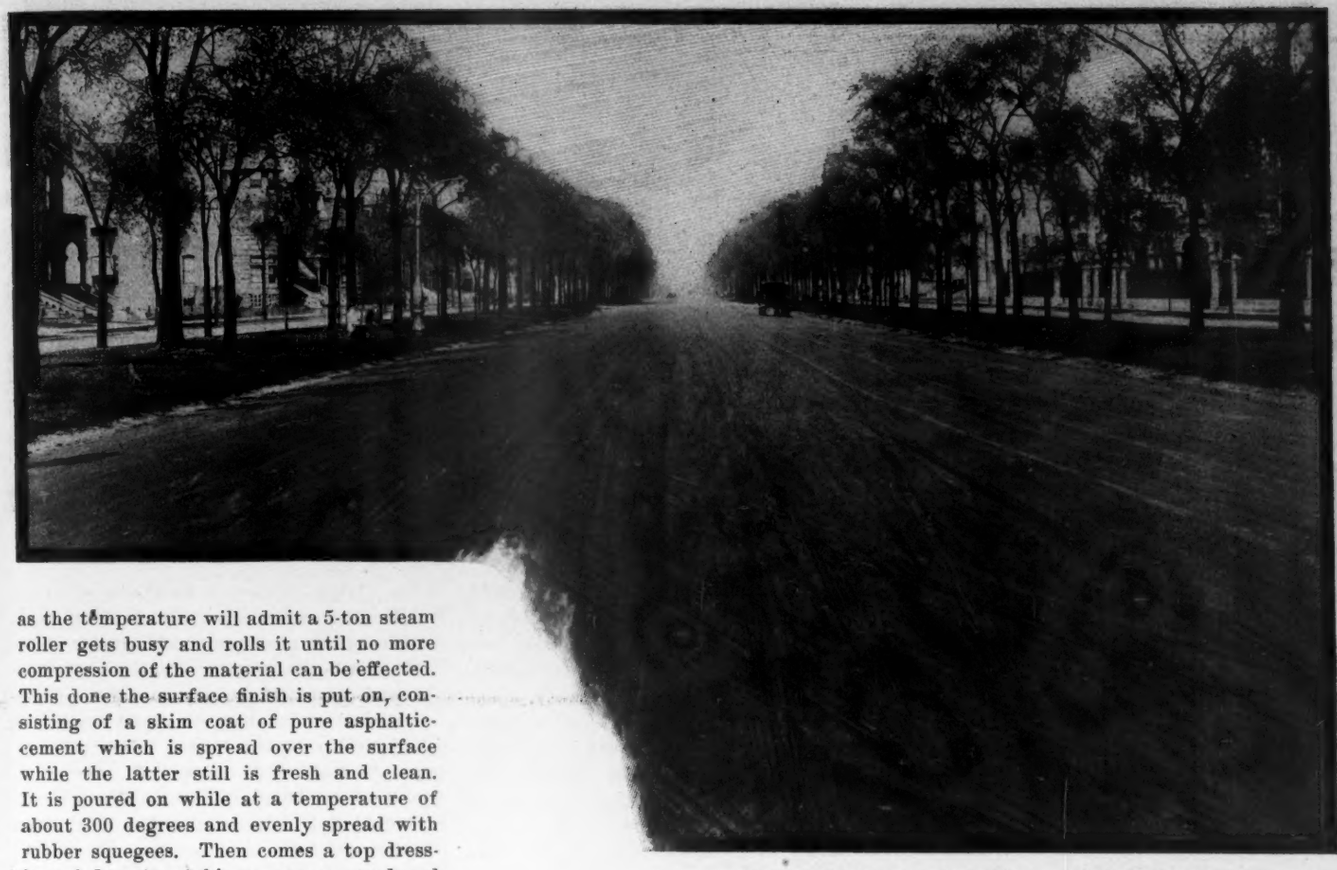
What Asphaltic-Concrete Is

The materials of which the pavement is composed are clean, hard-crushed stone fairly evenly graded as to size, combined with a definite proportion of sand and thoroughly intermingled with a filling and elastic substance consisting of mineral rubber asphaltic-cement. These materials assembled and combined in the proper proportions, one has a paving material that will, when compressed under the roller, form a well-filled compact mass with a somewhat grainy surface. There is enough sand and asphaltic cement, considered as the mortar constituent, to fill the voids between the stones, but not enough to flush smooth over the surface. The use of sand is for the purpose of filling as much as practicable the voids between the particles of stone and reducing the quantity of asphaltic-cement required. The asphaltic-cement is used to fill the remaining voids, to bind the mineral particles together, and by the elastic support given to each piece of stone, add stability and resiliency to the pavement.

Stone used in this pavement can be either limestone, granite, trap or other stone used for paving purposes, broken as nearly cubical as is practicable for such material. The asphaltic-cement is 99.5 per cent pure bitumen soluble in carbon disulphide and 99.2 per cent soluble in carbon tetrachloride. This bitumen contains from 73 to 76 per cent malthene soluble in petrolic ether of 86 per cent Baume and from 24 to 26 per cent asphaltene, soluble in chloroform and not soluble in such petrolic ether. The melting point of the asphaltic-cement is not less than 180 or more than 190 degrees Fahrenheit, and when tested in a Cleveland open cup it has a flash point not lower than 455 degrees Fahrenheit.

Pursuing his investigations further, the foreigner looked up the method of mixing and laying. He found that in mixing the crushed stone and sand are dried thoroughly in dryers before being mixed with asphaltic-cement. The dryers are of the revolving type, agitating and turning the material during the process of drying. When the stone and sand are thoroughly dried and heated to a temperature of from 250 to 300 degrees Fahrenheit they are mixed with the asphaltic cement before cooling or being exposed to moisture. In the laying of it, the paving mixture is spread evenly on a base with hot iron rakes so that when compressed wtih the roller it shall have the required thickness. As soon

SOUTH PARK'S MOTOR SPRINKLER WHICH THROWS DOUBLE STREAM



ASPHALTIC-CONCRETE STRETCH ON GRAND BOULEVARD

as the temperature will admit a 5-ton steam roller gets busy and rolls it until no more compression of the material can be effected. This done the surface finish is put on, consisting of a skim coat of pure asphaltic-cement which is spread over the surface while the latter still is fresh and clean. It is poured on while at a temperature of about 300 degrees and evenly spread with rubber squegees. Then comes a top dressing of dry stone chips or coarse sand and then more rolling. There is a small surplus of stone chips or sand left to be worn away by the traffic after the road is put into commission.

Portable Paving Machines

With this data stowed away in his notebook, the Englishman next turned his attention to the other feather in the cap of the south park commission—the portable paving machines the first of which park commissioners at a cost of approximately $6,000. The machines are made and sold by the Link-Belt Co., of Chicago, and each is a complete self-contained plant mounted on broad-tired wheels. All working parts are driven from a mainshaft, receiving power from a traction engine which accompanies the machine at all times and which is used in moving it forward at intervals. The moving of the machine ordinarily is accomplished in not to exceed 10 minutes and without interruption of the laying operation. The machines used by the south park board are of a capacity which can lay from 1,000 to 1,200 square yards of the asphaltic-concrete 2 inches thick in a 9-hour day. They are about 27 feet in length and weigh approximately 17 tons. The other two park boards have both purchased machines.

Chicagoans have a good opportunity to study this leviathan, for it is at work on the Midway at the present time. Those who have watched it in operation note that the stone and sand are hauled separately to the street ahead of the machine, there to be mixed in proper proportion and heaped into piles at the machine settlings. Shoveled into the hopper at the front, the mixture is fed by a spiral conveyer into a horizontal revolving drum-dryer which is located directly over the furnace, the materials being thoroughly mixed as they pass slowly toward the rear end where, at a proper temperature, they tail out into the boot of the elevator which delivers them to a storage hopper at the top and rear of the machine. Beneath the storage hopper is a measuring hopper, the discharge gates of both being operated by levers so interlocked that only one can be opened at a time. The amount of aggregate delivered to the measuring hopper is adjustable to requirements, but is constant for any fixed adjustment or setting requiring an invariable discharge to the mixer with the asphalt. Above the rotary dryer and removed from the direct heat of the furnace is the asphalt-melting pot from the rear of which the asphalt is drawn off to the measuring device, whence it is discharged to the mixer simultaneously with the hot aggregate. The mixer receives the measured proportions of asphalt and aggregate and in 1 minute is ready to deliver the batch at a temperature of about 275 degrees Fahrenheit to barrows or carts

MOTOR SPRINKLER READY FOR ITS DAILY TASK

GANG LAYING A STRETCH OF ASPHALT ON A SOUTH SIDE BOULEVARD

placed beneath the discharge gate. The hot gases from the furnace pass upward around the drum dryer to the asphalt tank above, whence a fan sends them through the interior of the drum, around the storage hopper and measuring device, and thence to the stack. When no heating of the material is desired, a reversal of dampers permits direct escape of the gases to the small stack at the front of the machine, beside the fan. Dampers and baffle plates enable close regulation of the heat reaching the asphalt tank.

Crew of the Road-Maker

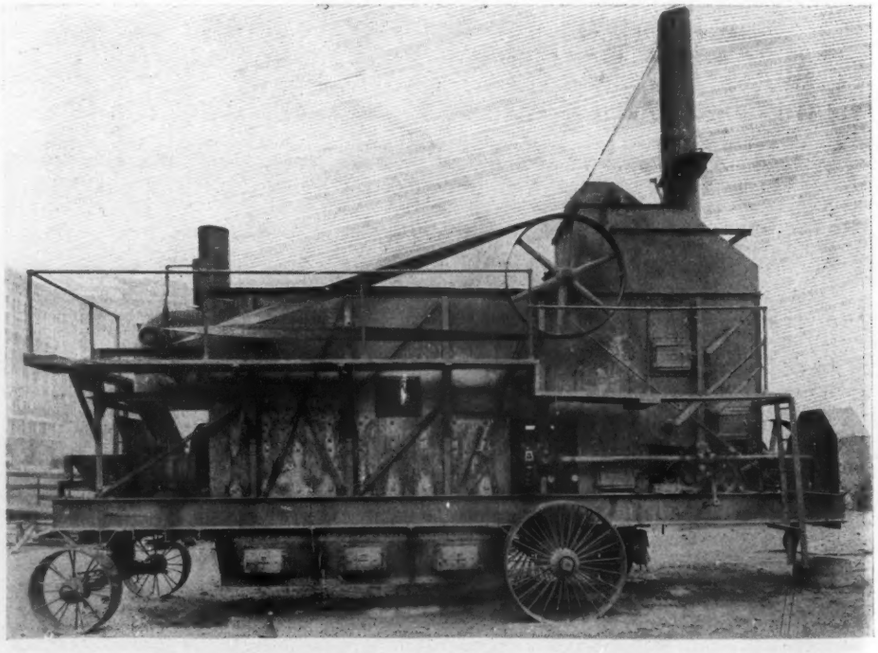
In operating such a plant three men feed the dryer, one man tends the asphalt tank, there is a fireman, a machine tender and oiler, a lever man for measuring the mixture and a mixer who discharges the finished material. When two machines are operated together one asphalt tank man, one fireman and one machine-tender serve them both. The south park board employs about 100 men in its road-making department and with such a big staff it is enabled to keep two machines working, turning out about 2,000 square yards of road a day of a thickness of 2 inches.

Before he went back this Englishman, greatly interested by this time, looked into other points concerning this city and found that Chicago has a great park system taking in all three sides of the city—south, north and west. The total park area for the three divisions is 3,766.05 acres. The south park system covers 2,494 acres, the west 1,029 acres, the north 569, while other parks and squares contribute 117 more. The south side has 33 miles of boulevards under its control, exclusive of roadways within the parks, the west 25 and the north but 9.33. But by co-operation on the part of all three, Chicago is able to boast of a boulevard belt, connected at each section, that measures more than 40 miles, so that it is possible for a motorist to make the circuit of the city without running on the same road twice. No other city in the country can make this boast and back it up.

With so much to look after it is no wonder that each of the park commissions is like a small municipality, spending yearly vast sums in the maintenance of the plants and always striving to give the public a run for its money. The south siders are particularly wideawake and their little kingdom is a model of its kind, with an efficient staff at the head and including a good-sized police force. The commission makes its own roads and by so doing it is enabled to lay pavements that are far superior to the kind it could get if the work was done by contractors, it is claimed. An idea of the magnitude of the south side kingdom may be had when it is cited that the district includes 92.6 miles in which the population is more than 700,000. There are twenty-three parks in all included in this system, many of them play grounds, while the larger ones are Jackson park, with 542.89 acres, and Washington, with 371; while the magnificent Midway, almost a park in itself, covers 80 acres. There are nineteen boulevards in all under the jurisdiction of the board. Michigan avenue is 6.16 miles long and varying in width from 80 to 100 feet. Grand boulevard is but 2 miles and 198 feet wide; Drexel is 1.48 and 200 feet in width; Western is 2.81 and 200 feet wide, and Garfield 3.50 and 200 feet wide. There are double drives on all but Michigan and Western which add to the labors of the commission. Grand boulevard has three drives and is a magnificent thoroughfare.

South Side Kingdom

The south park board's kingdom represents a vast fortune. It is estimated that the value of the lands alone is $5,776,915.20 and the improvements represent another



ROAD-MAKING MACHINE BROUGHT OUT BY CHICAGOANS

SOUTH PARK WORKMEN FIXING ROAD AT JACKSON STREET BRIDGE

$11,306,413.02, giving a grand total of $17,083,328.22. It does not let out a single concession, maintaining refectories at which meals are served to the public at reasonable rates; golf links, athletic grounds, a yacht harbor and a system of small parks or play grounds that cannot be excelled. These are self-sustaining and the popularity of the regime is testified to by the thousands and thousands who pack the parks day and night. The broad-mindedness of the commissioners is further testified to by their recent action in throwing open all athletic grounds, boats and other privileges to the public on Sundays, arguing that it is better for the people to be rationally amused than to be driven to saloons for their relaxation on Sunday.

Road-building and road maintenance are the hobbies of the commissioners, however, and it is probable that there are few park commissions which do as much work in this line as they do. There still are fewer which maintain their own road-making departments and which do as much experimenting as do the Chicagoans. And throughout it all it is noticed that they treat the motorists with a toleration and a spirit of fairness not found in many cities. They realize that the motor car is here to stay and that if the old-style roads will not stand the motor traffic, then the best thing to do is to find some road surface that will. That's how they have discovered that this asphaltic-concrete seems to fill the bill most acceptably.

Progress in Road Work

"The south park board last year resurfaced some 160,000 square yards of road, which represents about 5 miles in length, and this year we contemplate doing about the same amount of work," says Engineer Linn White. "At the present time we are working on the Midway and then will come Jackson park, and Drexel and Garfield boulevards. Our crowning bit of glory, I think, is the widening of Michigan avenue between Randolph street and Twelfth street. I believe you hardly will find a stretch like that in the world—a more imposing thoroughfare and so near the heart of a great city. The total width of the street since we widened it is 130 feet, taking in both sidewalks, while the driveway itself is 75 feet wide. Some of our other boulevards are wider than this in general width, but they have two and three driveways, while this Michigan avenue stretch is a continuous width. It is over 1 mile in length, and one almost could stand an army on it in one glittering mass of color and action. On this new bit we are using this asphaltic-concrete, and I think it will defy time and the motor car.

"We have done considerable experimental work before we settled upon this asphaltic-concrete. We found that while bithulithic makes a very fine pavement it is affected by the heat just as is any other surface into which tar enters as an ingredient. The bithulithic we have down was laid by contractors who now are endeavoring to live up to their 10-year guarantee by taking out the ruts caused by the heat. On hot days ruts soon appear. They can be taken out by rolling, but it has been demonstrated that they soon return, so that in order to maintain a smooth roadway a steam roller would have to be at work constantly. At the present time the contractors are trying to stop the return of the ruts by sprinkling small stones to stiffen the bithulithic, but they have not been doing that long enough to give us a very good line on the success of the idea.

"I find that it costs us from $1 to $2 a yard to lay this asphaltic-concrete; that means the complete construction of the road. This probably is cheaper than if

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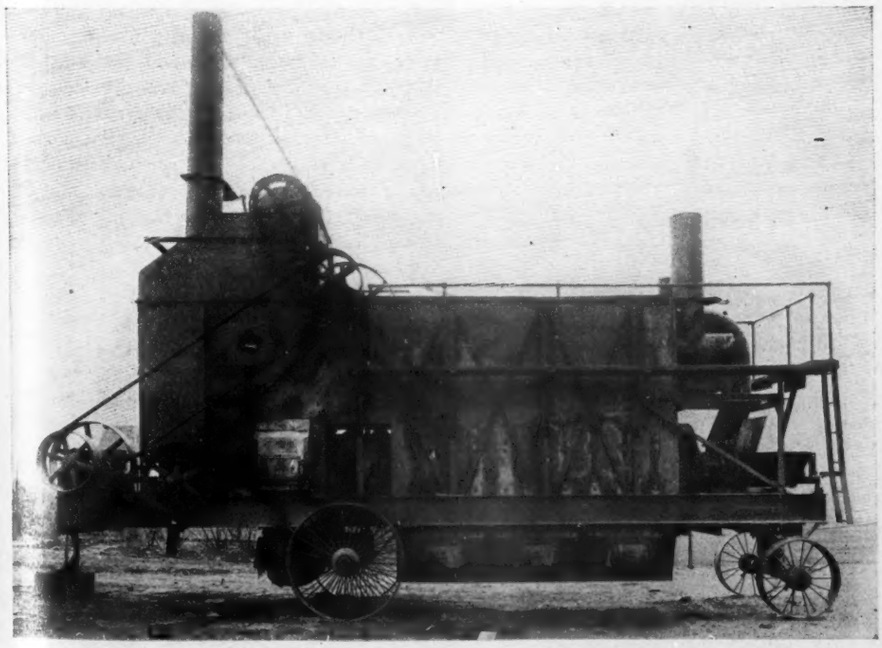

SIDE VIEW OF PORTABLE ROAD-MAKING MACHINE

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Signs for Grade Crossings

THERE must be a better system of uniform signals indicating railroad crossings adopted by the different states from the Atlantic to the Pacific or else the needless sacrifice of lives will continue. Every week brings the story of the fatal grade railroad crossing accident in one state or another; and it generally happens that the victims are traveling in some other state than their home one. This fact alone suggests the imperative action necessary in this respect. There are in the country scores of railroad crossings which are obscured by trees, shrubs or hills and which are of such nature that it is necessary to bring the car practically to a dead stop before the railroad tracks can be seen at either side of the road. On the Glidden-Chicago tour this year more than a score of railroads were crossed in which a full view of the track on both sides was not obtained until the car was within 10 feet of the tracks. In one or two cases the radiator was barely 5 feet from the tracks before the driver could see the steel rails. Such conditions are extremely dangerous and should be safeguarded.

IT seems that special signals for railroad crossings for the use of motorists are imperative. At every railroad crossing at present there are the usual crossing signals erected by the railroad companies, but these are so close to the tracks as to be almost useless. What is needed is a red danger signal 100 yards from the crossing, and this sign should be as close as possible to the side of the roadbed. At present the state laws prevent danger signs being placed closer to the road than the telegraph poles. This is too far away, particularly for motor car work in which the driver's eyes are supposed to be on the road ahead and not in the fence corners alongside of the road. These special danger signals should be larger than the majority of the danger signs used at present and they should be of characteristic contour and entirely different from any other danger signs. The danger sign, for example, signifying a railroad crossing should not be of the same general outline as a danger sign indicating a sharp curve or a steep hill. Some conspicuously shaped sign should be adopted and it must be large.

GRANTED that delegates from every state in the union unite in selecting a special type of sign for railroad crossings, the danger will not be eliminated and those drivers who are provided with ears and hear not and eyes but see not, will still run amuck with the giant locomotive. The personal equation of the driver never can be eliminated and the man born to be killed at the railroad crossing will still remain true to his fate. Good precautionary signs will work a great good and the numerous accidents at the present time should be sufficient examples to impress on the public in general as well as the railroad authorities. If at particularly bad crossings where the tracks are concealed by trees, the shrubbery should be cut down and where the approach of trains is concealed because of the approach being through a cutting in the earth double danger signs should be located along the road making it almost impossible for any driver to miss them. The humpback railroad crossing has been responsible for one or more railroad accidents due to stalling of the motor and it would be a sensible act for motor clubs to see to it that where crossings of this nature exist that they be leveled so that the possibilities of stalling the motor and thereby courting accidents is practically obviated.

State Tours Very Valuable

MUCH credit is due the officers of the Wisconsin State Automobile Association who are this week conducting a reliability tour of 6 days embracing more than ninety cities and towns in the state and bringing the tourists in touch with nearly every motor club within the state boundaries. This is about the first example there has been of a state association realizing the value that necessarily must accrue from making a circum-state test of this nature. The association primarily started the test with the object of aiding the good roads cause as well as cementing the bonds existing between the state association and the numerous clubs constituting it, but the value of this all-Wisconsin tour does not end here, it has a primary value to all of the entrants who in the majority of cases are car dealers located in Milwaukee. These dealers have territory embracing the entire state and a parade and test of this nature is certain to develop the motoring spirit to the farthest corner of the state. It is a good lesson in developing the market in small cities and towns as well as in the agricultural districts. More states can imitate the object set by the Wisconsin organization to good advantage.

THE river-to-river road project born in Iowa a few months ago and carried into execution before the Glidden-Chicago tour crossed the state already is bearing fruit in the state of Missouri, where a feeling is already exerting itself to establish a river-to-river road across that state between St. Louis and Kansas City. The Missouri citizen has had his pride attacked by the advertising gained by the enterprising Iowans and it is more than likely that before many moons the river-to-river idea will have so materialized in Missouri that cars will be scampering across the state in the hope of selecting what is the best cross-state route. These river-to-river road ideas are excellent but only permanently good if there is something tangible done in connection with them. If the idea consists solely in the selection of a route there is little to be gained; but if after the idea is partially carried into execution signboards are erected and other permanent results accomplished the road becomes a benefit to the citizens bordering on it and to the citizens who travel over it as well. No such state-wide significance should be given to any road unless there is assurance that some permanent work is to be carried on in connection with the route. Motor Age is waiting for the metropolis-to-capital route in Illinois, that Chicago-Springfield route that has been talked about.

CONSERVATISM has won out this season and has saved the day. It is scarcely a year ago that the madcap ideas of tremendous outputs of cars were scurrying across the country and that incidentally a feeling was bred in the minds of many that there was grave danger of an overproduction and the consequent slump in the market. Fortunately that overproduction took place only in a few factories and today the motor situation is better than anticipated. Fortunately many companies were not able to build within 1,000 cars of what they anticipated and these thousands in many cases have saved the day. There are at the present time three or four factories with a good few machines on their hands, but the surplus is nothing in comparison with what it might have been and what surplus exists will be absorbed through natural channels within the next few months.

The Motoring Calendar

July 22-27—Second annual endurance run of Minnesota State Automobile Association.

July 22-27—Second annual tour of Minnesota State Automobile Association.

July 25-27—Reliability run of Cleveland Automobile Club, Cleveland, O.

July 23—Meet on speedway at Atlanta, Ga.

July 25—Track meet of Order of Owls, Chillicothe, O.

July 28-29—Third annual interclub reliability team match between Chicago Automobile Club and Chicago Athletic Association.

July 30—Track meet of North Wildwood Automobile Club, Wildwood, N. J.

July 30—Inaugural sweepstakes meet on Long Island motor parkway.

August 1—Reliability run of Minneapolis Automobile Club, Minneapolis, Minn.

August 1-September 15—French industrial vehicle trials.

August 6—Track meet of Quaker City Motor Club, of Philadelphia.

August 11—Annual hill-climb of Chicago Motor Club at Algonquin, Ill.

August 16-27—Munsey tour.

August 17—Track meet at Cheyenne, Wyo.

August 26-27—Road races of Chicago Motor Club at Elgin, Ill.

August 31-September 8—Reliability run of Automobile Club of Kansas City, Mo.

September 2-3-5—Speedway meet at Indianapolis.

September 3—Reliability run of North Wildwood Automobile Club, Wildwood, N. J.

September 5—Track meet at Wildwood, N. J.

September 5—Track meet at Cheyenne, Wyo.

September 5—Road race of Denver Motor Club, Denver, Colo.

September 5-10—Track meet at state fair, Minneapolis, Minn.

September 7-9—Four-day reliability run of Automobile Club of Buffalo.

September 9-10—Track meet at Providence, R. I.

September 10—Automobile Club of San Francisco road race, Golden Gate park.

September 10—Mount Baldy road race, Los Angeles, Cal.

September 10-11-12—Track meet at Seattle, Wash.

September 17—Track meet, Syracuse, N. Y.

September 18—Track meet at Syracuse, N. Y.

September 24—Santa Monica road race of Licensed Motor Car Dealers of Los Angeles, Cal.

October 1—Vanderbilt cup race.

October 3—Reliability run of Louisville Automobile Club, Louisville, Ky.

October 7-8—Speedway meet at Los Angeles, Cal.

October 6-7-8—Track meet at Santa Anna, Cal.

October 8—Fairmount Park road race, Philadelphia, Pa.

October 15-November 2—Show in Paris promoted by Aeronautical Society.

October 15-16-17-18—Annual 1,000-mile reliability run of Chicago Motor Club.

October 20-21-22—Speedway meet at Atlanta, Ga.

October 23—Road race, Portola cup, San Francisco, Cal.

October 27-28-29—Track meet at Dallas, Tex.

November 5-6—Track meet at New Orleans, La.

November 6-9-13—Track meet at San Antonio, Tex.

November 24—Hill-climb at Redlands, Cal.

November 24—Road races at Savannah, Ga.

December 1-8—First annual aeronautical exhibition, Chicago Coliseum.

December 3-18—Annual salon of Automobile Club of France.

January 7-14 and 17-24, 1911—Show of A. L. A. M., Madison Square garden, New York.

February 6-11 and 13-20, 1911—N. A. A. M. show, Chicago.

South Park Boulevards Are Pride of Motorists

(Continued from page 5)

contractors did the work. The average macadam road costs from 75 cents to $1.25 a yard, but in my opinion the asphaltic-concrete really is cheaper in the end, for it endures so much longer than does the macadam, which has been demonstrated to my satisfaction to be unfit for the modern traffic, which is so severe because of the multiplicity of the motor cars. As to the use of asphaltic-concrete on roads other than park boulevards, I am of the opinion that it would be profitable to try it. Take it with Chicago, for instance. It would be economy to construct a road from Chicago to Milwaukee of this material. The expense would be heaviest getting out of the city, but once in the country the cost of construction and maintenance would be lessened because the traffic would be lighter. Think how nice it would be to have such an exit into Indiana, down through South Chicago and Hammond. Why, it would be one of the greatest boons motoring in this vicinity ever has known.

"The south park commission practically has abandoned the use of oil as a dust-layer. Time was when we thought highly of it and used it considerably, but we were forced to abandon it because of its uncleanliness and its failure to bond the macadam together. It spattered vehicles, was thrown up and tramped upon the walks and there was so much dissatisfaction that we have again brought out the water wagon. I do not mean to condemn oil for this purpose, though, but in our case it was unsatisfactory because we had to oil the roads so many times to keep them dustless. In the country where one application will last a long time, then it is a most effective dust-preventive.

"At the present time we are using a motor sprinkler which is proving most successful. It is, of course, propelled by motor power and it carries 1,500 gallons of water, which is equal to 6 tons. Two men can operate it, one driving and the other tending to the sprinkling. It is cheap to maintain and our statistics show that this one sprinkler does the work of three horse-drawn sprinkling wagons and still perhaps saves us money in the cost of operation. It sprinkles from both ends and because of the motor it can do its work most quickly.

"That brings me back to the asphaltic-concrete pavement and illustrates another of its advantages—that is, it is dustless. By that I do not mean that no dust accumulates on the roadbed, but that the dust does not come from the pavement—it is blown on. Of course, we cannot prevent that, but still the new pavement greatly simplifies our work in this direction. We remove the dust that is blown on by flushing the streets at night so that when your motorist starts down town in the morning he finds a street that is perfectly free from dust. Another method we use is that of gutter-flushing as we call it. We find that the dust blown onto the road has a tendency to get into the gutters, just as do the loose papers and other debris of the streets. By running a small sprinkler so that it sprays into the gutters we remove this matter without wetting the rest of the street. This can be done quickly and cheaply and it has proven to be a great success."

One can get a good idea of the amount of traffic on the south side boulevards by referring to the report made by the commissioners last fall after they had made two counts of 24 hours each. This count disclosed that the motor cars outnumbered the horse three to one on week days, while on Sundays they outnumbered Dobbin twenty-three to one. At Michigan avenue and Jackson street the traffic was heaviest, the total number of vehicles passing on a Sunday being 9,052, while on a week day it was 13,964. That first stretch of asphaltic-concrete on Grand boulevard stood a lot, the figures showing that at Fifty-first street 6,647 vehicles passed on a week day and 3,447 on a Sunday. Of these 5,693 were motor cars on a week day and 2,375 on a Sunday. And yet this surface has come through with flying colors.

BEACH RACE NEAR PORTLAND

Portland, Ore., July 16—At the race meet held at Clatsop Beach, near Portland, R. D. Inman won the first prize and the cup offered by the Spokane, Portland and Seattle Railway Co. The race was for 10 miles. He covered the distance in 9½ minutes. E. L. Mills won second place. The event was under the auspices of the Portland Automobile Club, and was the first held on the beach. With the opening of racing on the beach, the promise that Clatsop beach will be a popular summer resort, activity has centered around the prospect of building a motor road from Portland to Astoria. With the expenditure on the road of $50,000, it can be put in condition so that cars can make the trip in 10 hours.

Chicago Park System Pioneer in Road-Making

TENTATIVE DECREE IS FILED IN FORD CASE

NEW YORK, July 20—Special telegram—A tentative decree covering the salient points in the opinion rendered by Federal Judge Charles M. Hough, in the suit of George B. Selden and the Columbia Motor Car Co., exclusive licensee under basic patents granted to Mr. Selden for improvement in road engines, was filed with Judge Hough July 19 in the parlors of the New Mathewson hotel, at Narragansett Pier. The decree submitted was that drawn by Frederick P. Fish and Samuel R. Betts on behalf of the complainants, and under its terms the Columbia Motor Car Co. is installed formally as party complainant to the suit and substituted for the Electrical Vehicle Co., which instituted the action.

It holds that George B. Selden is the legal inventor of the gasoline road engine, and that the defendants, the Ford Motor Co. and C. A. Duerr & Co., representing the Panhard Motor Co., had been guilty of infringing actions 1, 2 and 5 of the letters patent.

It holds that the complainants are entitled to recover the profits, gains and advantages that have accrued to the defendants by reason of the infringements and orders the whole matter to be reported to a master of the court to take account of the measure of damages that shall be taxed. The decree also provides that a perpetual injunction issue against the defendants, prohibiting them from continuing to infringe the patents.

Besides Messrs. Fish and Betts, George B. Selden and Alfred Reeves appeared on behalf of the complainants, and Edmund Wetmore, W. Benton, Frederick R. Coudert, James Couzens and Charles K. Offield represented the defendant company.

The request to issue an injunction was sharply contested by the defendants. It was urged that the defendants were quite as anxious as the complainants to bring the matter to a final decision, and for that reason the suggestion was made to the court that a sufficient bond to cover damages and profits might better be required pending such final decision.

Complainant's attorneys, in discussing this phase of the matter mentioned the figures of $500,000 as the size of the bond to be filed by the Ford company and $50,000 from the Panhard company. Whether the issuance of such an order will be made is problematical, and will not be known in the immediate future, because the decision of Judge Hough as to the exact form of the decree still is under advisement.

The court is on a vacation at present, and Judge Hough was visiting Narragansett Pier for the purpose of addressing the sixteenth annual convention of the Commercial Law League of America. The proceedings of the case will come up for final review and an ultimate decision in October, before the court of appeals. A preferential position for the matter has been secured on the calendar of that court. The full text of the decree submitted follows:

At a stated term of the United States circuit court for the southern district of New York, held in and for said district on the —— day of ——, 1910. Present Charles M. Hough, judge. The Columbia Motor Car Co. and George B. Selden, complainants, vs. C. A. Duerr & Co. and Ford Motor Co., defendants, in equity number 8566 on Selden patent number 549,160.

This cause having come on for final hearing upon the original pleadings, and the proceedings, and the testimony and proofs filed on behalf of both parties, and having been orally argued before the court on the issues raised by said pleadings and proofs on May 28 and 29 and June 1, 2, 3 and 4, 1909, by Frederick P. Fish, William A. Redding and Samuel R. Betts, counsel for complainants, and R. A. Parker and W. Benton Crisp, counsel for defendants, and an opinion herein having been filed by his honor, Judge Hough, on September 19, 1909, and this cause thereafter having come on to be heard on the supplemental bill and answer and replication, and the proceedings and testimony and proofs thereunder filed on behalf of both parties, and having been orally argued before the court on the issues raised by said supplemental pleadings and proof on July 19, 1910, by Frederick P. Fish and Samuel R. Betts, counsel for complainants, and Edmund W. Moore and W. Benton Crisp, counsel for defendants now, after due proceedings had, it is, upon consideration, ordered, adjudged and decreed as follows:

1—That the Columbia Motor Car Co., as an assignee of the Electric Vehicle Co., be and is hereby made a party complainant to this suit in the place and stead of said Electric Vehicle Co., and is hereby given the same benefit of the record and proceedings herein, and of any decisions, orders or injunctions heretofore or which may hereafter be granted against the defendants herein, as the said Electric Vehicle Co. or its successors, or either of them, might have had if they had not made the assignments dated June 30, 1909, to said the Columbia Motor Car Co. That the Columbia Motor Car Co. is hereby authorized to continue the prosecution of this suit with George B. Selden, patentee of letters patent proceeded on herein, against the defendants as of June 30, 1909, and as a complainant therein in the place and stead of said Electric Vehicle Co.

2—That the letters patent of the United States issued to said George B. Selden on November 5, 1895, No. 549,160, for improvements in road engines, are good and valid in law as to first, second and fifth claims thereof, being the claims proceeded in this cause, and which are as follows:

1—The combination with the road locomotive, provided with suitable running gear, including a propelling wheel and steering mechanism of a liquid hydrocarbon gas-engine of the compression type, comprising one or more power cylinders, a suitable liquid fuel receptacle, a power shaft connected with and arranged to run faster than the propelling wheel, an intermediate clutch or disconnecting device, and a suitable carriage body located above the engine, substantially as described.

2—The combination with a road locomotive provided with a propelling wheel, of a liquid-hydrocarbon gas-engine of the compression type, comprising two or more working cylinders and piston arranged to act in succession during the rotation of the power shaft, a suitable fuel receptacle, suitable devices for transmitting motion from the power shaft to the driving axle, and a clutch or disconnecting device substantially as described.

3—That the said George B. Selden was the sole, first and original inventor and discoverer of the inventions described in said letters patent, and claimed in the said first, second and fifth claims thereof.

4—That the said George B. Selden, complainant, is the owner of the legal title to said letters patent, and that the complainant, the Columbia Motor Car Co., is the exclusive licensee thereunder, with power to grant sub-licenses.

5—That the defendant Ford Motor Co. has infringed upon the said letters patent and said claims 1, 2 and 5 thereof, and upon the exclusive rights of complainants under the same by manufacturing, using and selling, in the United States, within the southern district of New York and elsewhere, without right or license, road engines, vehicles or gasoline motor cars containing, embodying or employing the said inventions and improvements described in said letters patent and claimed in the said first, second and fifth claims thereof, and that the defendants C. A. Duerr & Co. have infringed upon said letters patent and the said claims 1, 2 and 5 thereof, and upon the exclusive rights of complainants under the same, by using and selling, in the United States, within the southern district of New York and elsewhere, without right or license, road engines, vehicles or gasoline motor cars containing, embodying or employing the said inventions and improvements described in said letters patent and claimed in the said first, second and fifth claims thereof.

6—That the complainants do recover of the defendants the profits, gains and advantages which the said defendants have derived, received or made by reason of the said or any infringements by the said defendants of said claims 1, 2 and 5 of the said letters patent; and that the said complainants do also recover of said defendants any and all damages the complainants or their assignors may have sustained by reason of any infringement of said claims of said letters patent by the defendants. And it is hereby referred to the master of this court, who is hereby appointed for the special reason, to take and state an account of such gains, profits and advantages, and to assess such damages, and to report to the court thereof with all convenient speed. And the defendants and each of them are hereby directed and required to attend before said master from time to time as required, and to produce before him such books, papers and documents as relate to the matters at issue and to submit to such oral examination as the master may require.

7—That a perpetual injunction issue out of and under the seal of this court enjoining and restraining the defendants and each of them and their officers, directors, associates, attorneys, solicitors, clerks, servants, agents, employes and workmen, from directly or indirectly making, or causing to be made, using, or causing to be used, or offering or advertising for sale, or causing to be offered or advertised for sale, or importing or causing to be imported, or selling, or causing to be sold in any manner, or disposing of in any way, within the United States, any road engines, vehicles, motor cars, devices or apparatus containing or embodying or employing any of the inventions described in said letters patent and claimed in said first, second and fifth claims thereof, or substantial or material parts thereof, or from infringing said claims of said letters patent in any way whatsoever.

8—That the complainants do recover of the defendants their costs and disbursements in this suit, to be taxed by the clerk of this court, and that the question of increase of damages and all further questions be reserved until the coming in of the master's report.

TALK THE U. S. M. C. POLICY

New York, July 15—Officers and representatives of the United States Motor Co. and of its affiliated companies held their annual convention at Cedar Point, O., July 11, 12 and 13. The meeting afforded the first opportunity to bring together the combined sales forces of the Maxwell-Briscoe Motor Co. and the Columbia Motor Car Co. During the convention the many phases of activity in large selling organizations were discussed and after due consideration the policies and aims of the United States Motor Co. were given emphatic expression. One of the matters which received unusual attention was the sales system and the supervisory organization by which the United States Motor Co. will cover the entire country. This plan consists of selling districts, each embracing a large territory and each having a district supervisor. Such is the general system for handling the aggregate output of the company. The meetings—some of which were night sessions—were presided over by Horace DeLisser, vice-president of the United States Motor Co., in charge of sales. Among those present were Benja-

min Briscoe, president of the United States Motor Co.; J. D. Maxwell, president of the Maxwell-Briscoe Motor Co.; F. D. Dorman, vice-president of the Maxwell-Briscoe Motor Co.; H. W. Nuckols, vice-president of the Columbia Motor Car Co.; F. E. Dayton, sales manager of the Columbia Motor Car Co.; Frank Briscoe, president of the Brush Runabout Co.; Morris Grabowsky, general manager Alden Sampson Mfg. Co.; F. Harris, sales manager Brush Runabout Co.; J. I. Jameson, sales manager Dayton Motor Car Co.; Charles E. Stone, commercial vehicle expert Alden Sampson Mfg Co. There also were the district managers, the branch house managers, and a number of dealers, as well as the advertising men of the United States Motor Co., Maxwell, Stoddard-Dayton, Brush and Columbia.

PATENT SUIT STARTED

Boston, Mass., July 18—Hopewell Brothers, manufacturers of tire covers, of Newton, Mass., have recently entered suit in the circuit court of the United States in Boston against two tire concerns selling tire covers which are claimed to be infringements of Hopewell patents. One infringer was selling a tire cover with an endless coil spring and the other was selling a cover with buttons along the tread. The Hopewell concern holds patents Nos. 858,458; 926,499; 859,215, and 881,411. Patent No. 858,458 covers an overlapping tire case in which one end fits within the other. Patent No. 926,499 is a manufacturing patent controlling the manufacture of a tire case which overlaps on the tread. Patent 859,215 covers an annular or continuous tire case, in which the edge is contracted by a cord. Patent 881,411 is an improvement patent covering specifically constructional details in some of the present Hopewell cases.

MATHESON CREDITORS MEET

New York, July 20—Creditors of the Matheson Motor Car Co., of Wilkes-Barre, Pa., which went into the hands of a receiver July 7, met at the Hotel Breslin today at the suggestion of the receiver, to formulate some plan by which the life of the company might be insured. The meeting was attended by fifty-two creditors, representing a majority of the claims both in number and amount. E. C. Fretz, of the Light Mfg. and Foundry Co., of Pottstown, presided.

The purpose of the meeting was outlined by several of the speakers. They said that it was their wish to arrive at some plan by which the receiver might be discharged as soon as possible, both for the sake of the creditors and for the company itself. The fact was emphasized that the assets of the company showed $262,000 more than the liabilities and that a little time would develop whether or not the company would be able to rescue itself. C. W. Matheson was called upon to outline present conditions and said that at the time the receiver was appointed, the company had valid contracts upon its books for the sale of 228 cars of a wholesale value of over $600,000. That sum would be sufficient to wipe out the claims, according to many of those who attended the meeting.

The underlying reason for the difficulty in which the Matheson company finds itself is the weather that obtained throughout the country last spring, particularly in the middle west. The four chief creditors of the Matheson Motor Car Co. are the Light Mfg. and Foundry Co., the Bosch Magneto Co., the Diamond Rubber Co. and the Reading Metal Body Co. In naming a committee of creditors to investigate conditions and to act in harmony with the managements of the company and receivers, Chairman Fretz appointed himself, representing the Light Mfg. and Foundry Co.; G. J. Bates, of the Diamond Rubber Co., and J. C. Reiber, of the Reading Metal Body Co. The Bosch Magneto Co. did not seek a place upon the committee. The meeting adopted resolutions of confidence in the company and the car and endorsing any action that the committee may take. A reorganization of the corporation upon a larger basis of capital was clearly outlined in the proceedings. The Matheson Automobile Co., the selling company for the product of the factory, remains intact. Definite action on the part of the committee probably will take place in the immediate future and something in the nature of results is likely to develop within a month.

CALIFORNIA'S REPORT

San Francisco, Cal., July 14—The state of California shows a large increase in the motor business, according to the report issued recently from the office of the secretary of state. It has doubled in the last 2 years, as shown by the figures compiled by Robson O. Bell, superintendent of the motor vehicle department in that office. The fees mentioned in the following summary of the report are those collected for registration of cars with the secretary of state and also for licenses secured by chauffeurs to run machines in California. The fees aggregated $32,050.50, for the fiscal year closing on June 30, 1910. Two years ago, for the fiscal report of 1908, they came to a little over $16,000. Up to June 30, 1909, the fees amounted to $19,000, showing that the gain in the last 12 months has been the greatest since the department was organized. This year tops last year by $13,000, over two-thirds as much again, and is just double that of 2 years ago.

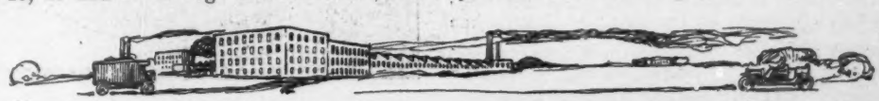
CLEVELAND RUN PLANS

Cleveland, O., July 18—The reliability run of the Cleveland News, to be held July 25, 26 and 27 through northern Ohio, will be the biggest road contest that has been promoted by Clevelanders. From present indications, at least forty cars will be entered. On the first day's run the contestants will pass from Cleveland through Akron, Canton, Massillon, Dalton, Wooster, Springville, Lakeville, Loudonville, Amity, Mt. Vernon, Centerburg, Sunbury, Westerville and Worthington, the terminus being Columbus. On the second day the party will pass through Dublin, New California, Marysville, Middleburg, Zanesville, Bellefontaine, Huntsville, Round Head, Holden, Findlay and Perrysburg, ending in Toledo. On the third day the run will be through Sandusky, Norwalk and Elyria, ending in Cleveland. The entire distance will total about 482 miles. There will be three classes in the run. They are cars selling under $1,200, which are limited to a speed of 14 miles per hour; cars selling between $1,200 and $3,000 which are limited to 16 miles; and cars selling over $3,000, which are limited to 18 miles.

INCREASING OVERLAND STOCK

Toledo, O., July 16—Announcement is made by President J. N. Willys that at a meeting to be held today the capital stock of the Willys-Overland Mfg. Co. will be increased from $2,000,000 to $6,000,000. The purpose of the increase is to prepare for the growth which is expected by the company. In speaking of the matter Mr. Willys said: "We do not intend to sell this stock immediately. The fact of the matter is, we are going ahead carefully and expanding only as business conditions warrant. However, we want to have this additional $4,000,000 of capital stock in our treasury, so that it can be sold as the improvements planned will warrant. This Toledo plant is going to be one of the biggest industries of its kind in the country. We want to be prepared to handle the increased business as rapidly as it grows. But, as I said, we will hold this stock in our treasury to be sold when improvements are required. It is only a question of time, if conditions continue as satisfactory in Toledo as they have been so far, until the Indianapolis plant of the Overland will be moved here. This is now my home, and I want to center all of my business here."

The company is now finishing the last of its 1910 orders, and by the first of September or possibly by the middle of August will start on 1911 models. It will put out approximately 25,000 cars during the next year, the larger per cent of which will be turned out from the Toledo plant. Plans have been completed and figures are now being received for the new Warner Mfg. Co. building, which will be two stories high, 100 feet wide and 600 feet long. The concern manufactures parts for the Overland, and has been occupying a portion of its Toledo plant.



MANY START IN THE WISCONSIN STATE TOUR

MILWAUKEE, WIS., July 18—Under the most favorable conditions the first annual reliability tour of the Wisconsin State Automobile Association started at promptly 7 o'clock this morning from the Hotel Pfister. No. 22 Overland was sent away by Starter James T. Drought at the appointed hour, and the remaining twenty-three left at 1-minute intervals. There was no hitch in the proceedings, careful and rather laborious preparations having precluded any chance of delay.

All of the twenty-five cars excepting the Warren-Detroit roadster, which the factory could not get ready in time, were on the starting line. At the wheels of several cars were several renowned drivers, notably Lewis Strang, who piloted the Pierce-Racine. Edward Collier, the Rambler expert, pushed No. 1, the only 1911 model in the tour, across the line. There were several notable cars also. The Ohio 40A, which ran in the Glidden tour with much credit, was driven by Ross Henwood, while the Mitchell Ranger went forward under the hands of F. P. Wilkins. There is but one privately-owned car in the tour, and this was the Jackson 59, No. 7, owned and driven by W. L. McEldowney, of West Salem, Wis., a youngster.

STARTER DROUGHT LEAVING THE PFISTER HOUSE IN MILWAUKEE

Most of the contesting cars are in the $801 to $1,600 class, scheduled to run at the rate of 16 miles an hour. It is one of the best averages of any reliability tour ever conducted in Wisconsin. There is only one air-cooled car, a Franklin, and one friction-drive machine, the Petrel, of Milwaukee.

Four Penalized First Day

Madison, Wis., July 18—Twenty of the twenty-four contestants in the Wisconsin reliability tour came through with a clean score for the first day of the 808-mile tour, which opened at 7 o'clock at Milwaukee this morning. The day's run was something over 156 miles, over a circuitous route from Milwaukee to Janesville and Monroe to Madison, the state capital. Penalties were meted out to four cars, as follows:

No. 5 Mitchell Ranger, 2 points for broken lampbracket bolt.

No. 14 Pierce-Racine, 7 points: Four-minute motor stop, 4 points; taking on water, 3 points.

No. 15 Johnson, 5 points: Broken fan belt, 1 point; oiling same, 1 point; work, 1 minute, 1 point.

No. 19 Corbin, 5 points: Three-minute motor stop, 3 points; 2 minutes' work on carbureter, 2 points.

The first day's run, although seemingly hard to the novitiates in long-distance touring under the rigid restrictions of a state reliability tour, was rather easy. It was considered so by those who know what is to follow in the next 5 days. There were long and short hills in good numbers; bad holes and culverts without number, and several good sandy stretches, but all effects of recent heavy rains had practically been obliterated by the hot sun, and with the exception of a few deep mudholes, all of the cars kept up to schedule and there was not one that did not get into the night control at Madison long before the due time. The tour book, prepared by M. C. Moore, president of the W. S. A. A., pathfinder and pilot for the tour, was so well done that it was only carelessness on the part of three or four cars that they lost the road during the early part of the day's run. No penalty was attached for this first offense, although the contestants did not double back and start from the proper point where they left the right road.

At Janesville and Monroe, where ½ hour stops were made for supplies and refreshments, the local clubs or members of the W. S. A. A. had made ample provision for the cordial reception of the tourists. Monroe gave a larger turnout than did Janesville, although the city is about half as large. Janesville was reached at 10:15 and Monroe at 12:45. There was little tire trouble during the day's run. Probably not more than four cars required a stop for changing or inflation of tires.

There was some complaint from drivers that competitors were making a race out of the tour, but so soon as the officials were notified this was stopped. Apparently the oldest and wisest heads in the touring game were the worst offenders.

Every courtesy is being shown drivers of horses and pedestrians along the route, and this seems to be appreciated to a greater degree than at any time before since the advent of the motor car. At almost every farmhouse the families were out in force, although harvest work is in full sway. Flags and banners were waved by the children and a fine spirit was shown by the ruralites. In the smaller communities every inhabitant seemed to be out, and they assisted the tourists by pointing

MILWAUKEEANS SHOW GREAT INTEREST IN STATE RELIABILITY RUN

DAY-BY-DAY SCORE OF CARS IN WISCONSIN STATE ASSOCIATION RELIABILITY TOUR

No.	Car	No. Cyl.	Cyl. Bore	Piston Stroke	Car Model	Entrant	Driver	1st day	2d day
1	Rambler	4	5	5½	64	Rambler Garage Co.	Edward Collier	0	3
2	Rambler	4	4½	4½	53	Rambler Garage Co.	Arthur Gardiner	0	0
3	Badger	4	4	4	B-10	Badger Motor Car Co.	Dan Arbogast	0	0
4	Badger	4	4	4	B-10	Badger Motor Car Co.	C. Kobersteen	0	10
5	Mitchell	4	4¼	5	T	Mitchell Auto Co.	F. P. Wilkins	2	0
6	Cadillac	4	4¼	4½	30	Jonas Automobile Co.	Aug. A. Jones	0	1
7	Jackson	4	4⅞	4¾	59	W. L. McEldowney	W. L. McEldowney	0	0
8	Buick	4	4¼	4½	19	Buick Motor Co.	Wm. Fisher	0	0
9	Buick	4	4½	5	17	Buick Motor Co.	R. Hokanson	0	0
10	Kissel	4	4½	4¾	D-10	Kissel Motor Car Co.	N. C. Rice	0	0
11	Kissel	4	4⅞	4¾	D-10	Kissel Motor Car Co.	W. R. Rice	0	0
12	Kissel	4	4¼	4¼	LD-10	Kissel Motor Car Co.	Arthur Ove	0	0
14	Pierce-Racine	4	4¼	5	K	Morrison M. C. Co.	Lewis Strang	7	2
15	Johnson	4	4¼	4½	10 special	Johnson Service Co.	Marsden	5	15
16	Ohio	4	4¼	4¾	40 A	J. I. Case Plow Works	Ross Henwood	5	15
17	Pope-Hartford	4	5-16	5½	T	Emil Estberg	Emil Essberg	0	0
18	Reo	4	4	4½	S	Curtis Automobile Co.	—— Thomas	0	0
19	Corbin	4	4½	4½	18	Curtis Automobile Co.	Gordon Bird	5	25
20	Ford	4	3¾	4	T	Hickman-Lawson-Diener Co.	W. H. Diener	0	0
21	Franklin	4	3⅝	4	G	Franklin Auto & Supply Co.	M. E. Springer	0	0
22	Overland	4	4¼	4½	42	Bates-Odenbrett Auto Co.	John Heber	0	0
23	Staver	4	4	4	M	Stephenson Motor Car Co.	Monckmeier	0	0
24	Petrel	4	4⅜	4¾	F	Petrel Motor Car Co.	G. D. Waite	0	0
26	Marion	4	4¼	4½	Bob Cat	Geo. Browne	Geo. Browne	0	197

out the way with flags left by the pilot or with wooden signs. The signboards placed by the Thomas B. Jeffery Co., of Kenosha, Wis., some time ago, were of material assistance to contestants. They were found accurately distributed and well placed.

Besides the twenty-four contestants there were five official cars, as follows:

Pacemaker, 1911 Peerless seven-passenger touring car, donated by Jonas Automobile Co.
Pilot, 1910 Rambler 54, donated by Rambler Garage Co., of Milwaukee.
Officials, 1910 Rambler 54, donated by Rambler Garage Co., Milwaukee.
Surgeon, 1910 Buick 14, donated by Buick Motor Co., Milwaukee branch.
Starter and secretary, Stevens-Duryea, donated by Faustin Prinz, Milwaukee, private owner.
Chairman's car, Winton Six, donated by Mayor A. J. Horlick, Racine, Wis., member of contest committee.

George A. West, chairman of the contest board, is acting as referee. President Moore, of the association, who blazed the trail, is pilot. James T. Drought, secretary of the association, is starter and secretary. David Beecroft is chairman of the technical committee and technical expert. Motor Age's representative is carried by

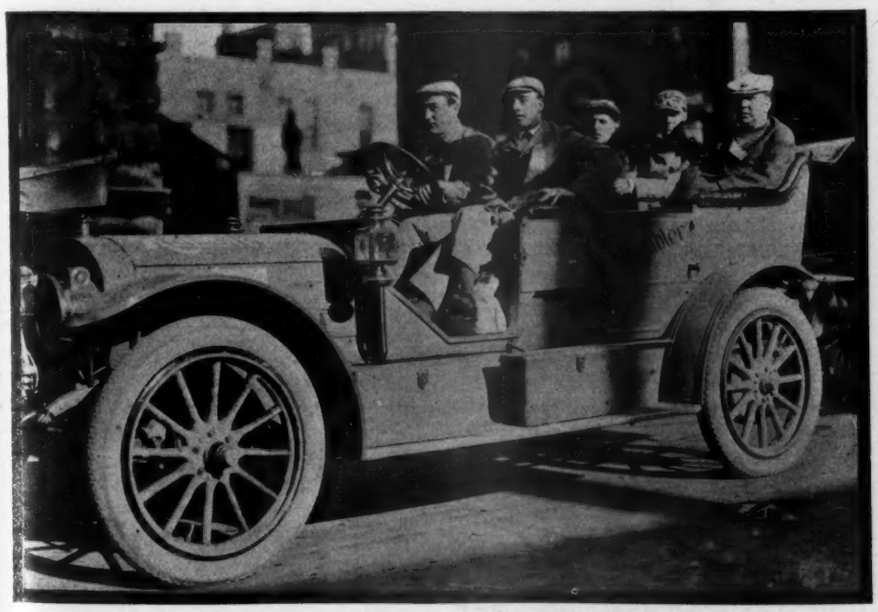
LEWIS STRANG, DRIVING THE PIERCE-RACINE IN THE TOUR

No. 6 Cadillac, entered by the Jonas Automobile Co., and driven by August A. Jonas.

Troubles of Second Day

La Crosse, Wis., July 19—Special telegram—After a desperate tussle with sand, twenty-four cars full of tired and hungry motorists arrived here this afternoon, completing the second and what is believed the hardest day of the Wisconsin State Automobile Association tour for the Milwaukee Sentinel trophy. It was one continuous battle all day long. Here and there was a bit of good roads, but for the greater part of the journey sandy roads, in some places a foot deep, retarded the progress of the contestants. As a result but fourteen machines remained in the tour with perfect records tonight. Up to midnight one car, the Staver, No. 23, had not reported, and it is thought that it will be withdrawn. The car was laid up at Elroy with differential trouble.

The Rambler penalty today was incurred because of trouble with the fan belt. The No. 4 Badger was required to take on water and gas at points other than the controls and was assessed 10 points as a result. One point was taken from the No. 12 Kisselkar because of carbureter trouble. The Corbin was taxed 25 points for the same reason. The Pierce-Racine was penalized 2 points for work on the clutch. The fan belt trouble was the cause of the Johnson's penalization. George Browne in his Marion was unfortunate and was penalized 187 points



RAMBLER PRESS CAR IN THE WISCONSIN STATE RELIABILITY

for work on his carbureter during the day.

The weather was superb and the scenery simply magnificent, but the rough roads and the ever present jolting from mountainlike water bars spoiled the fun of those few who are making the trip for an outing.

The performances of the machines, in view of the road conditions, were little short of remarkable.

Leaving Madison at 7 o'clock a fast run was made to Portage. The going, for the most part, was excellent, though a stretch of sand just south of Portage slowed up a number of the cars. No stop was made at that town made famous by Father Marquette and, after crossing the historic old Wisconsin, the cars were headed straight for Baraboo. The sand in places was a foot deep and when there was no sand, water bars, some of them 18 inches high, gave the tourists a roller coasting effect. Despite the going, the trip was made in fairly good time and most of the cars had arrived at Baraboo by 1 o'clock.

From the circus town a quick jump was made to Reedsburg, through the wonderful valley of the Baraboo river. The scenery up the valley of this stream is really beautiful, and it opened the eyes of every tourist who has never been in this section of the state.

From Reedsburg the dash to La Velle was made in fast time. From there until Elroy was reached, however, the going was exceedingly rocky, the sand being especially bad. Most of the penalties incurred during the day were attached on this part of the journey.

After a double quick lunch had been stowed away at Elroy, the cars were sent on, with Kendalls as their objective point. The road between the two towns was fairly good, and it continued that way until Ontario was reached. From Ontario to Cashton, the top of the state, it was the same old story of sand, and then some more. From Cashton the run over the beautiful ridge of St. Joseph down into the valley of the Mississippi was made in good time. The roads were excellent, and the ever present water bar was conspicuous by its absence.

Wednesday's run takes the tourists up the beautiful valley of the Trempealeau through the counties of La Crosse, Trempealeau and Eau Claire. The run is the shortest of the whole tour, and the cars are not scheduled to quit La Crosse until 9 o'clock. The route is one continuous ocean wave of up and down hill, but the roads are said to be in perfect shape, and the wanderers look for a pleasant run.

Whitehall has been designated the noon control, and the citizens of the pretty little town have prepared a big welcome for the cup contestants. From Whitehall the cars will be headed for Pigeons' Falls and thence to Eau Claire, through several small villages. At Eau Claire the biggest turnout of the tour is anticipated. The Eau Claire club has planned on holding a big smoker for the motorists, and every one is looking for a large time.

Among the most interested of the officials making the tour of the state is W. O. Hotchkiss, head of Wisconsin's good roads department. Mr. Hotchkiss is taking note of the highway conditions all along the route, and his inspection is expected to have a wholesome effect, if not at once, at least within the next year.

Instead of abating, interest in the run appears to grow with every mile registered. Thousands of farmers greeted the tourists today, while every village, hamlet and city passed had on its holiday togs. In many places stories were told of farmers who had driven 10 or 15 miles with their families to see the cars go past. The farmer appears to be as much interested in the run as anyone.

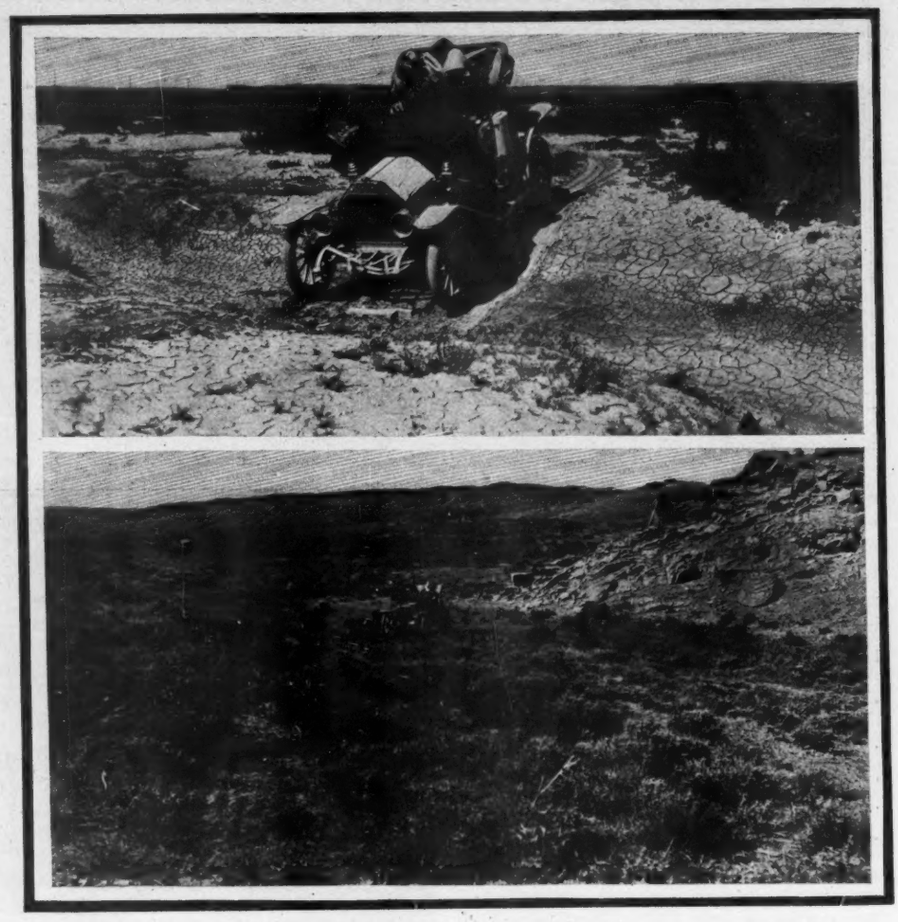
From La Crosse to Eau Claire

Eau Claire, Wis., July 20—Special telegram—Twenty-three of the twenty-four cars starting from Milwaukaa on Monday checked i nat Eau Claire today, everyone arriving ahead of time despite the hard run of 95 miles from La Crosse. It was the hardest going the Wisconsin tourists have experienced, the route leading through a rough and hilly country in Wisconsin. A panorama of unusual beauty, rivaling the Berkshires, spread constantly before the tourists, who for the first time had an opportunity to take their time and enjoy the splendid view. The Staver sent an official withdrawal this morning. Parts from Chicago reached La Crosse, but the car could not get away from Elroy because of the break in the transmission. All of the other cars are running fine.

The danger of starting disastrous forest fires, warning of which was given today, became apparent this afternoon when the road beyond Oseo was partly blocked. A match dropped in the straw placed on the sandy roads started a big blaze, which the crew of No. 6 Cadillac stopped, at least until all tourist cars could get by. The sand reached a depth of from 6 to 10 inches in innumerable places, but the association officials placed men or signals at such points. Straw on the sand was a great help.

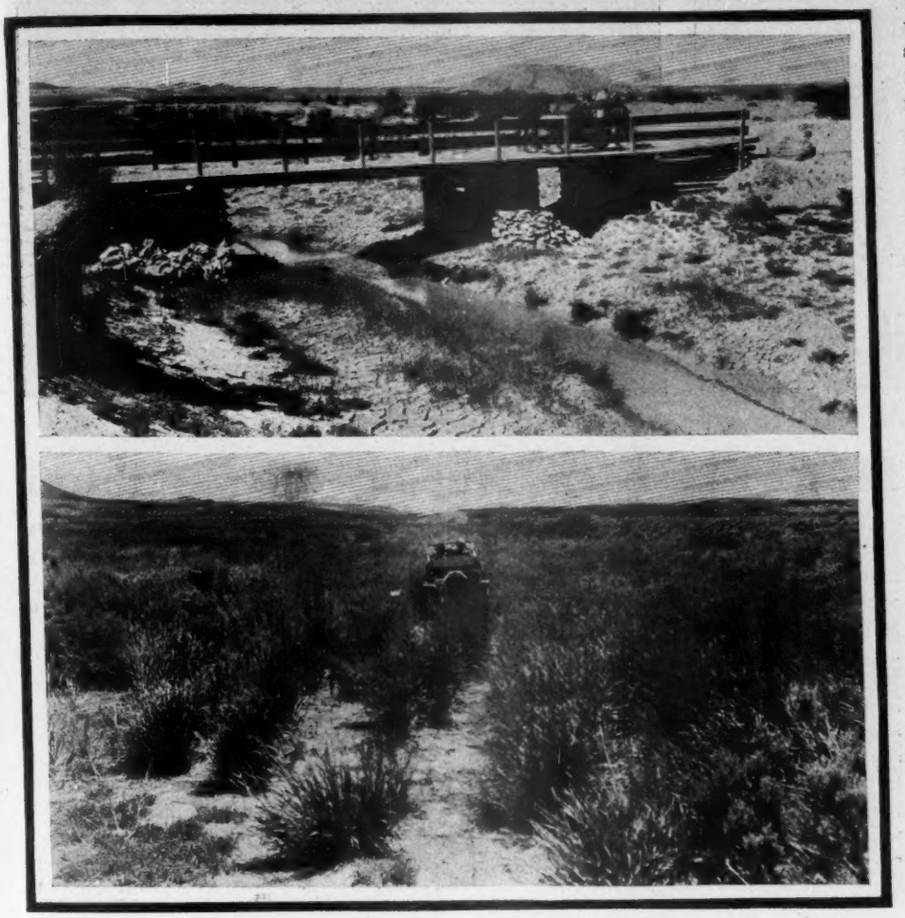
At White Hall, where a 1½ hour stop was made this noon, there was an official reception. The town was lavishly decorated and from a stand in the public square a band played and city and county officials

Miss Scott in Her Overland Car



TRANSCONTINENTAL TOURISTS TRAVELING IN BITTER CREEK COUNTRY
MISS SCOTT ENJOYS A SUNSET ON WESTERN PRAIRIES

Finds Rough Roads in the Far West



OVERLAND PARTY CROSSING BITTER CREEK BRIDGE IN WYOMING
RUNNING THROUGH SAGE BRUSH NEAR WAUSCUTLER, WYOMING

made addresses. For miles the tourists met farmers seated at the roadside, generally with lunches. It seems to have been made a holiday all along the route. Tomorrow's run is 115 miles due east to Merrill. On Friday Appleton is the objective point and Saturday is the finish.

PROBING SPEED TRAPS

Chicago, July 20—State's Attorney Wayman has started an investigation of the local speed traps and there promises to be some astonishing revelations concerning the methods of some justices and constables. The matter has been brought up by the charge lodged against Phillip Bulfer of operating a confidence game. It is claimed he hired a number of timers to clock motor cars and charged them $10 apiece for stop watches. The men say they have had hard work collecting their fees after doing the work.

The system which is about to be uncovered and by which many motorists claim to have been mulcted, has been operated for several months, it is alleged, in various suburbs. Men in on the game and employed by the system as timers have, it is asserted, held up Chicago drivers and accused them of speeding whether guilty or not. Then they have proposed and accepted deposits of $20 or $25 bond money and those arrested have been released, the cases never to be heard of again. From another angle it is alleged that constables have written letters to owners of cars, informing them that they had been seen speeding and advising them to give themselves up or send about $19.45 to pay the minimum fine and costs. In some cases, it is said, the cars reported upon were never in the jurisdiction of the writers of the letters demanding money. It was charged in court by Bulfer that he was employed by Justices Adam Davison and Alfred Tompkins, of Oak Park. Bulfer was accused of hiring a number of men to time cars in various Chicago suburbs. Bulfer, who is a former attorney, sought a continuance.

PARK BAN STIRS MOTORISTS

Boston, Mass., July 18—Boston motorists who a few days ago believed that it would be an easy matter to convince the highway commission that the rule barring motor cars from the Boston park system are not so sanguine that this may be done after all. The matter has taken on something of a political aspect, and the men who have watched the trend of affairs would not be surprised now if the commission approved the ruling which would put it squarely up to Mayor Fitzgerald, of Boston, who though he disclaims responsibility is really the one who suggested to the commission to close the roads. In other words the highway commission may object to being used for political purposes.

As a result of what has developed there will be a lot of owners and dealers on hand when the hearing is held July 27 to protest against closing the roadways. Secretary James Fortesque has sent out letters to the members of the Massachusetts State A. A; the officers of the Bay State A. A. have taken up the matter also; the Boston Automobile Dealers' Association is to have a meeting to take action on the matter; the Automobile Legal Association officials have asked William A. Thibodeau to represent it at the hearing; and the National Automobile Association will be represented by Francis Hurtubis, Jr. A number of individual motorists have already written letters of protest to the highway commission.

TRACK MEET AT DAYTON

Dayton, O., July 19—After a couple of postponements caused by rain the meet of the Dayton Automobile Club was held this afternoon on the ½-mile track at the fair grounds with the following results:

Five miles, class C, under 230 inches—Woverries, Buick, won; Endicott, Cole, second; Edmunds, Cole, third.

Five-mile handicap—Edmunds, Cole, 30 seconds, won; Woverries, Buick, second; Devoe, Overland, third. Time, 6:43.

Three and one-half miles, 231-300 class—Woverries, Buick, won; Devoe, Overland, second. Time, 4:58.

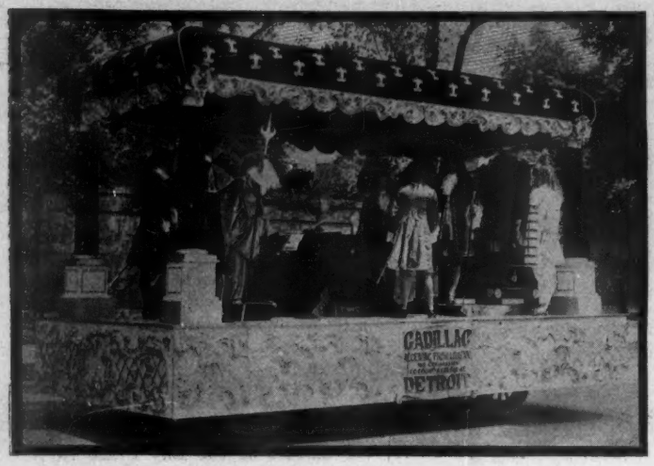
Seven and one-half miles, free-for-all—Endicott, Cole, won; Gilchrist, Stoddard-Dayton, second; Edmunds, Cole, third. Time, 10:25.

Five and one-half miles, class C, 161-230 class—Endicott, Cole, won; Woverries, Buick, second; Edmunds, Buick, third. Time, 6:55.

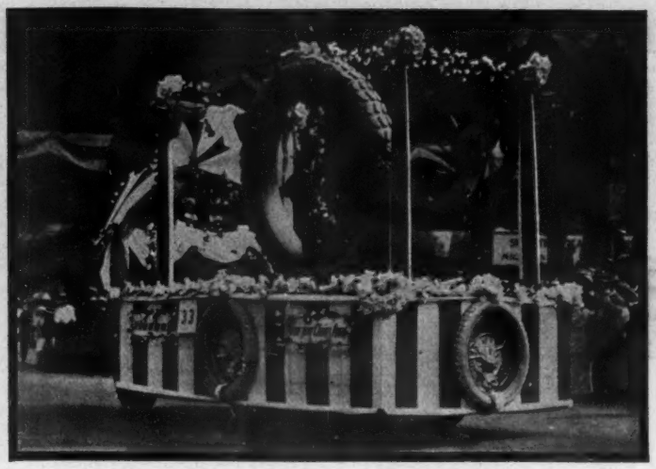
Ten miles, class E—Woverries, Buick, won; Endicott, Cole, second; Fritsch, Cole, third. Time, 13:30⅘.

BREAKS DEL MONTE RECORD

San Francisco, Cal., July 14—A trophy cup was offered some months ago by the Chanslor & Lyon Motor Supply Co., of San Francisco, to anyone breaking the standing Del Monte round trip record of 12 mours 12 minutes. A few days ago the cup was won by Al Leonard, manager of the San Francisco branch of the W. D. Newerf Rubber Co., and Eddie Mohrig, city manager of the Moore Motor Supply Co., who made a new record in a Buick of 10 hours 32 minutes. The distance covered was approximately 250 miles. Outside of considerable fog they reported conditions ideal for the trip. Leonard and Mohrig left the San Francisco starting point at 4:10 in the morning and made the run down in 4 hours 37 minutes, arriving at Del Monte at 8:47 o'clock. After a short rest they started on the return run and checked in at the starting point, at Golden Gate and Van Ness avenues, at 2:42 in the afternoon. They had been gone just 10 hours 32 minutes elapsed time.



CADILLAC FLOAT, WINNER OF SWEEPSTAKES PRIZE



MORGAN & WRIGHT DISPLAY IS IMPOSING

MICHELIN BIBENDUM TWINS

Motor is King During the Reunion

DETROIT, MICH., July 18—Gasoline reigned king in Detroit last week. The supremacy of the gasoline motor was strikingly demonstrated on land and water and in the sky overhead. No other factor contributed so largely to the entertainment of the host of visiting Elks. What with speed exhibitions by famous drivers, aeroplane flights at the state fair grounds, motor boat races on the river and one of the greatest motor parades the world has ever seen, the visitors must have gone home with their heads in a dizzy whirl.

While the motor parade did not quite meet expectations, it nevertheless was a noteworthy pageant. At the rate entries were coming in a week ago, Robert K. Davis, chairman of the parade committee, had counted on about 3,000 machines. In reality there were fewer than 2,000 in line Friday afternoon. The parade was about a dozen miles in length and as a spectacle was well worth seeing. Several thousand people evidently thought so, for the entire route, traversing nearly 8 miles, was lined with spectators and a goodly crowd filled the grandstands on Washington boulevard.

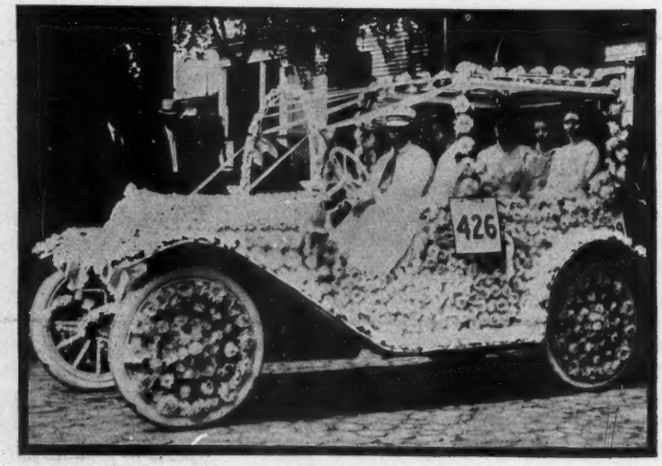
Practically all the local manufacturers took advantage of this opportunity to advertise their wares and most of them made a very creditable showing. An unusual number of 1911 models were displayed, high officials of the various companies driving them in many instances. There were some forty sections in all.

The Cadillac Motor Car Co. easily captured the grand sweepstakes prize, a 30-inch silver loving cup with gold lining, with its magnificent float representing Chevalier Cadillac receiving from Louis XIV of France a commission to found a colony at Detroit. It was a reproduction in life of a painting that hangs in the city hall and which was presented to the city by the French government on the occasion of Detroit's bi-centennial celebration.

A Chalmers 30, driven by Mrs. R. D. Aldrich, won the prize offered for the best decorated car driven by a woman. In the gasoline pleasure car division, T. A. Belinger, in a Warren-Detroit, won the first prize; Will B. Wreford, local agent of the Columbia, the second, and the third went

BUICK'S RACING TROPHIES

SIBLEY, ONE OF THE PRIZE WINNERS



WARREN-DETROIT CATCHES THE JUDGES' EYES

ELK IDEA WELL CARRIED OUT

RAPID TRUCK IS WELL DECORATED

Of the Order of Elks In Detroit

to the driver of a Sibley 20. In the commercial car division, the first prize went to the Welch-Detroit Motor Car for a strikingly realistic reproduction of a scene from the battle of Bloody Run. The second prize went to a local furniture house and the third to Morgan & Wright, whose float contained a boy in a swing suspended from the top of a huge tire.

The parade brought out some surprises in the way of comic novelty, but none more original than the dodge of the Michelin Tire Co., a pair of inflated rubber giants perched on a high pedestal. The figures assumed the most ludicrous positions imaginable as the car sped along, its locomotive whistle screeching incessantly. Needless to say, the Michelin company won a prize, and the only one in the comic section.

The Buick racing cars loomed conspicuously in the parade as they trailed along behind a car in which no fewer than fifty prize trophies were displayed. The official party, comprising Mayor Breitmeyer, Past Grand Exalted Ruler Sammis, of the Elks; Grand Secretary Fred C. Robinson, Grand Esquire A. J. Davis and Fred S. Burgess, chairman of the Elks' executive committee, rode in a big Welch car at the head of the parade, directly behind the police escort in Fords. E-M-F cars made up four divisions and the Ford and the Hupmobile two each. The Hudson Motor Car Co. had about sixty cars in line. Robert K. Davis was marshal of the parade and rode in his purple and white Maxwell roadster, followed by his aides in their individual cars. No parade would be complete without the Regal Plugger, and it was there with all its labels. Garry Herrmann, the new grand exalted ruler of the Elks, rode in the Hudson 30—won by the Cincinnati women for making the best appearance in the big Elks' parade of Thursday.

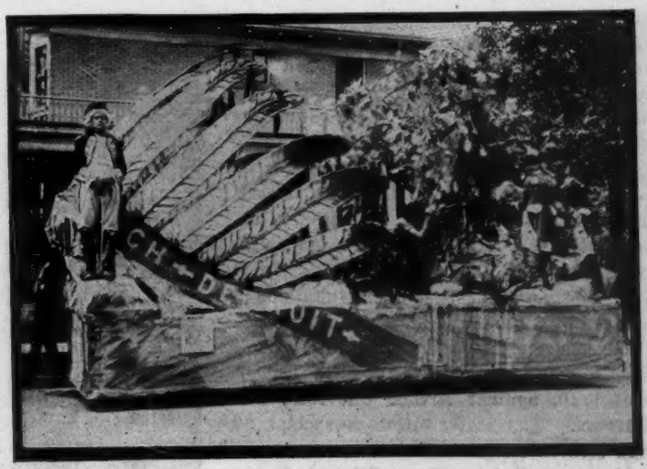
REGAL'S UNIQUE FLOAT

CHALMERS IN THE LIMELIGHT

Aside from its historical float and a fine showing of new cars, the Cadillac Motor Car Co. displayed its enterprise by rounding up a half dozen or so of its earliest type of cars, built in 1903, and having them driven in the parade by their owners under a banner bearing this legend: "Eight years of service and still going."

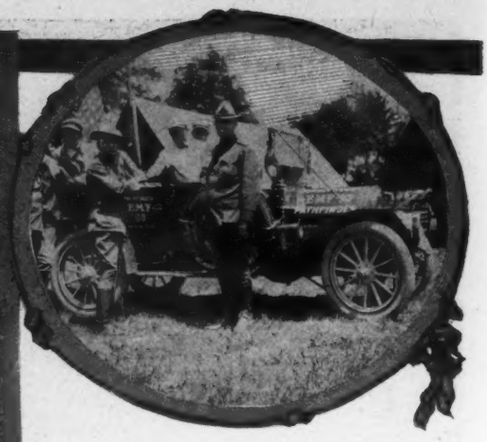
In planning to have the Abernathy kids ride in the parade, the committee reckoned without their dad, Sheriff Jack Abernathy,

COLUMBIA REMEMBERED BY THE JUDGES



WELCH-DETROIT USES A HISTORICAL IDEA

MUNSEY TOUR PATHFINDER VISITS GETTYSBURG



MILITARY GREETING AT GETTYSBURG

who, it is said, was not agreeable to the plan. The kids arrived in town in their little Brush runabout early in the week and left for Chicago Thursday morning, accompanied by their father in a Maxwell.

In spite of a rather heavy track, some remarkably good speed stunts were pulled off at the Grosse Pointe race track Saturday afternoon at the free exhibition matches participated in by the members of the Buick team. There were twelve events on the program, which attracted a crowd of nearly 10,000 people. The aeroplane flights at the fair grounds drew fewer than 1,000 people Saturday, but this attraction wasn't free.

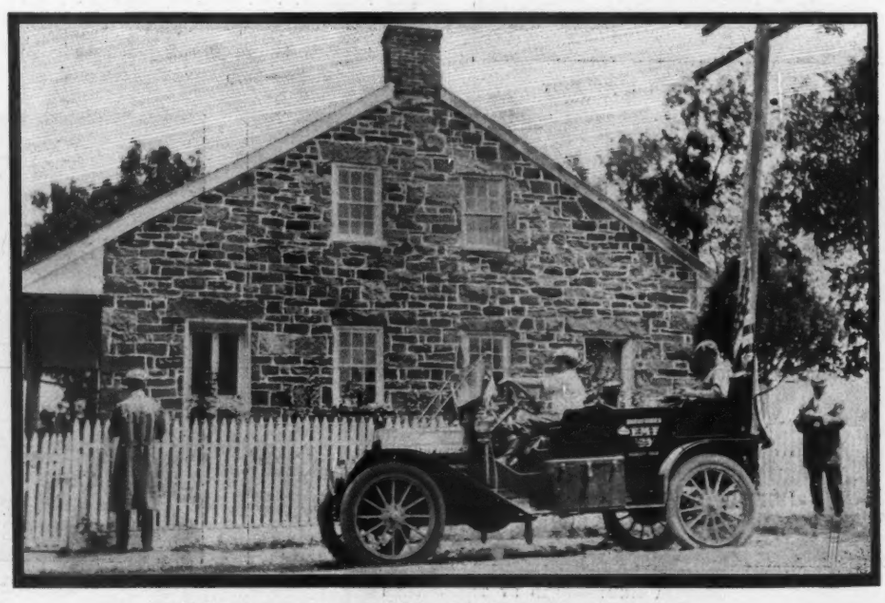
Burman, in his Buick Special, made the fastest mile of the day in :56⅘. This was on a second trial. The time on the first trial was :59 flat. But Louis Chevrolet carried off the lion's share of the day's honors, winning every event in which he was entered but one. His skill and daring excited much admiration and often brought the crowd to its feet. The opening event was a 1-mile race between Chevrolet and Burman in model 10 cars, which Chevrolet won by two lengths. Howard Hall and Arthur Chevrolet were contestants in an exciting 1-mile event in Marquette-Buicks, but the latter won handily.

It was in the 5-mile event between Louis Chevrolet and Burman that the real excitement came. The former had a good lead at the end of the second mile. Then Wild Bob let her out and at the end of the fourth mile was several lengths to the good. It was Chevrolet's turn to get busy, and he overtook Bob in the back stretch. Burman again drew on his reserve and presently the rivals were on even terms once more. As they approached the finish line Burman's car shot ahead and was a winner by 3 feet. The time was 5:39. Each drove a model 16 Marquette-Buick. Louis Chevrolet won a 3-mile handicap, in a model 10, against Arthur Chevrolet and Burman. The latter, with a special 60 was scratch man. Arthur Chevrolet drove a Marquette-Buick. Harry Winterhoff was an easy winner over Howard Hall.

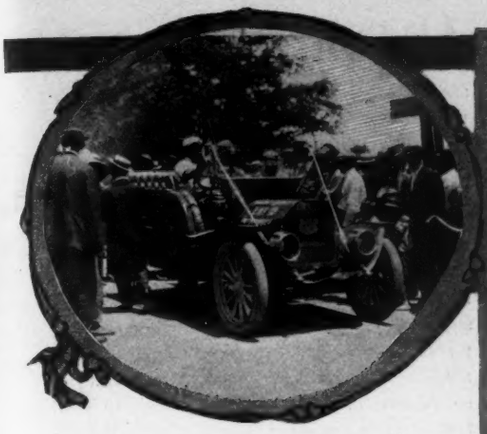
Troops for the Elgin Road Races

CHICAGO, July 19—The Chicago Motor Club and the Elgin Automobile Road Race Association, which are promoting the road races at Elgin, Ill., on Friday and Saturday, August 26 and 27, today secured military protection when the services of the Fifth regiment of the Illinois National Guard were promised by Colonel Frank S. Wood, the officer in command. This is a regiment from down the state, and was the only one available, for the annual state encampment takes place at the same time as the road races, and the rest of the troops will be at Peoria at that time. The Fifth will furnish between 200 and 300 men, plenty to guard a 9-mile course. It was no easy task to get the soldiers, and the promoters might have failed had it not been for Adjutant General S. S. Dickson, of Springfield, who not only came to Chicago for a consultation with the promoters, but went from here to Indianapolis to arrange matters with Colonel Wood, who was in that city on a business trip. Now that the military problem is settled, the rest will be easy, it is thought. The contractors are busy on the course at the present time, and next week the trophy question will be settled.

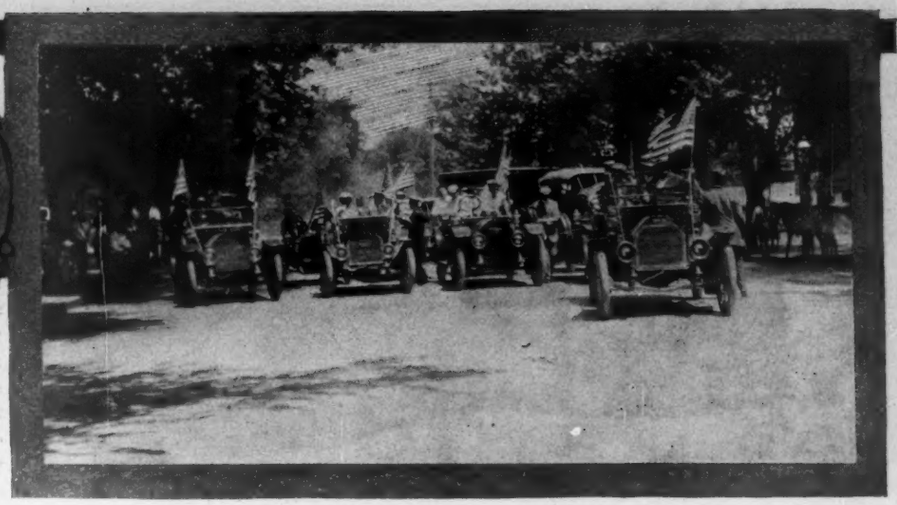
The Chicago Motor Club also announced today that the annual hill-climb at Algonquin will take place August 11, instead of August 4, as first intended. The club has been obliged to give a $20,000 bond to protect Dundee county, in which Perry hill is located, and so much time was used in settling this that the promoters feel it will be better for all parties concerned to shove the date ahead a week. Entry blanks are now out and the entries will close July 30 with Secretary H. T. Clinton at 2341 Michigan avenue. The card arranged is the same as last year, there being two sections, one a price classification and the other piston displacement. The formula idea will prevail in the former in that the cars in this division will contest under the formula and on a time basis.



E-M-F PATHFINDER AT LEE'S HEADQUARTERS, GETTYSBURG



AT FINISH IN WASHINGTON



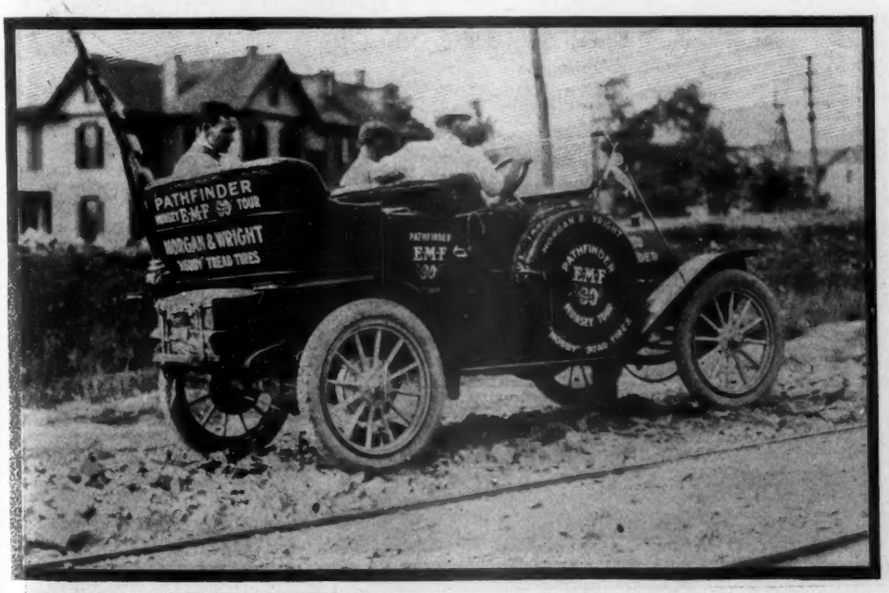
MUNSEY TOUR PATHFINDER ESCORTED INTO WASHINGTON

Contest Rules Discussed by Makers

BUFFALO, N. Y., July 19—An all-day session of the active rules committee of the Manufacturers' Contest Association was held at the International hotel, Niagara Falls, last Saturday. Chairman Howard E. Coffin presided. By invitation there were present H. O. Smith, vice-president of the Manufacturers' Contest Association; S. M. Butler, chairman of the contest board of the American Automobile Association, and A. L. McMurtry, chairman of the technical committee of the American Automobile Association.

Suggestions for changes in the contest rules to govern for 1911 submitted by members, non-members and registered drivers were given individual attention. Where in the judgment of the committee the suggested change was desirable, recommendations were made which will be referred for action to the general rules committee of twenty-five. All of those present were heard regarding the rules to be adopted for next year, with the result that practically the entire work done will be presented to the general rules committee for consideration before the meeting of this body which will take place some time in September, close to the dates to be set for the board meetings of the National Association of Automobile Manufacturers and the Association of Licensed Automobile Manufacturers. After being thoroughly discussed and acted upon at the September gathering, the proposed changes will again be referred back to the active rules committee, and by it finally submitted to the contest board of the American Automobile Association for adoption.

It will interest the public to know that practically all of the suggestions made were on matters of detail and making clearer portions of the rules which in their present state may be open to more than one interpretation. This condition speaks well for the rules as they now stand. The association has received from all quarters complimentary letters in the thoroughness with which regulation of contest matters has been handled.



MUNSEY TOUR PATHFINDER ENCOUNTERS ROCKS NEAR HARRISBURG, PA.

MUNSEY TOUR ENTRIES

Washington, D. C., July 16—The latest entry in the Munsey historic tour is a Cino, entered by Haberer & Co., of Cincinnati. This brings the entry list up to twenty-one cars. A Randolph commercial car has been entered in the non-contesting division. The official cars are as follows: Pilots, Selden, E-M-F; pacemaker, Columbia; starter's car, American; press cars, Thomas, E-M-F, Washington; photographer's car, Brush. Lewis Strang has been signed to drive the Pierce-Racine entry. Other drivers selected are: Tom Berger, Warren-Detroit; A. W. LaRoche, Regal; Ray McNamara, Premier; John Dower, Corbin. August 16 has been definitely decided on as the starting day for the tour. Leaving Philadelphia, the first day's run will be to West Point; second day, New London; third day, Boston; fourth day, Portland, Me.; fiifth day, Bethlehem; sixth day, Sunday layover in Bethlehem; seventh day, Burlington, Vt.; eighth day, Saratoga; ninth day, Binghamton; tenth day, Wilkes-Barre; eleventh day, Harrisburg, finishing in Washington on the twelfth day, August 27.

HILL-CLIMB AT PARIS

Paris, Ill., July 17—A climb was held last Thursday on Newport hill in which five events were contested. The free-for-all was won by Bob Kramer in a Stearns. A Maxwell Junior had a walkover in the class for cars $800 and under. An Oakland 30 won the $801-$1,200 class, beating two Hudsons, two Fords, a Warren-Detroit, Lambert and a Maxwell. In the $1,201-$1,600 class a Reo won over a Parry, two Fords, a Maxwell and an Overland, while in the $1,601-$2,000 class an Oakland 40 beat two Buicks, an Auburn, Inter-State and Jackson.

All Chicago Unites

At the Start of Chicage's Orphans' Day Run

Big Cars Carried Many of the Children

CHICAGO, July 16—Almost every city of prominence in the country has remembered the orphans this year—most of them during the month of June—but it has remained for Chicago to wait for settled and warm weather before showing its charity toward the youngsters. Here the weather generally is raw in June, so the Chicago Motor Club, Chicago Automobile Club and Chicago Automobile Trade Association did nothing in this line until last Thursday, when the combination pulled off the most successful orphans' day in the history of the city, taking 1,500 children in 160 cars for a pleasant drive around the boulevard system—a ride of some 35 miles, which was thoroughly enjoyed by the kids.

In a way Chicago's efforts differed from those of other big cities. It was believed the children would enjoy a long ride rather than to be taken to some amusement park and acting on this theory the joint committee from the three organizations—George T. Briggs, John H. Kelly and Joseph F. Gunther—started a campaign for cars. They didn't have much time in which to work and up to within a few days of the to get enough machines for all the chilrun it looked as if it would be impossible dren. It was felt that it would be better to call it off rather than leave even a single child behind, so the efforts of the committee were redoubled. Prominent citizens were called up by telephone, the row was raked with a fine-toothed comb and at the eleventh hour it was reckoned there would be enough cars to visit the fourteen institutions that had been invited to participate.

That the charity appeals to all was shown by the fact that of the 160 cars in line more than 100 had been contributed by private owners. Society women became enthused and noticed in line were several electric runabouts. True, these could not carry many children, but their owners were doing the best they could to help and their mite was appreciated. It also was noticed that there were few high-priced cars in line and it was discovered that there exists in Chicago many a rich man who would not help simply because he was afraid the children might scratch the paint in the tonneau. There were exceptions to this rule, of course, and some of the big cars that were out were packed to the limit, even to having a row of small boys perched on the tops, which were lowered for the purpose of making more room. Extremes meet, they say, and so it was in this case, for in sharp contrast to the big machines was one old one-cylinder car with a detachable tonneau whose owner was carrying as many boys as he could and apparently he was delighted with his experience. Several women drove their own gasoline cars and in addition there were several big trucks.

The Saurer truck carried fifty children and made an imposing appearance. The Chicago Tribune and the Chicago Examiner each sent out trucks which were filled with young humanity, while a White gasoline truck whizzed along with at least twenty-five kids aboard. The motor cycle police were on the job and were of great assistance in keeping the cars in line and preventing scorching. Indeed, the marshals frowned down on any exhibitions of beating it, and one driver was placed

Waiting for the Signal

Saurer Truck Carried More Than Its Share of Kiddies

On Orphans' Day

under arrest for endangering the orphans. The ride was not the only feature of the afternoon. The committee had provided something else to delight the kids, distributing packages of peanuts and candy and also handing out more than 1,000 flags. While the outing was to consist only of the ride, there were many who stopped at the refectories in the south side parks and bought cake and ice cream for their charges. Toward the end of the ride there was a slight shower, but this did not detract from the joy of the kids. The orphans were not the only ones remembered, for in several of the cars were fifty from the homes for the aged, there being three institutions sending their people out for the afternoon.

CHICAGO CARS CARRYING ORPHANS THROUGH THE PARKS

BOYS DID NOT OBJECT TO BEING CROWDED

LOWELL MAKES RACE PLANS

Lowell, Mass., July 18—At the last meeting of the Lowell board of aldermen action was taken on the petition presented by John O. Heinze, asking that the roads comprising the Merrimac valley race course be closed to the public September 15, 16 and 17, and after a lengthy hearing the petition was granted. There was a counter petition presented by Thomas A. Larkin, an attorney representing twenty-two residents of Varnum avenue, opposing the races and a petition signed by a number of business firms asked that the part of Mr. Heinze's petition to close the roads on Saturday be denied. When those in favor of the petition were asked to stand to be counted nearly everyone in the chamber got up, and Mr. Larkin was the only one to stand when those opposed were called. So the board granted the petition unanimously. Mr. Larkin suggested that the matter might be taken to the courts seeking an injunction. This was tried last year without avail. Mr. Heinze will appear this week before the selectmen of Tyngsboro with another petition asking their authority to close such portions of the road as goes through that town. As the selectmen favored the petition when it was presented to the legislature no opposition is expected there. Two races are planned now, one for small cars September 15 and another for big cars September 17. It is understood that Mr. Heinze will look after the races himself this year instead of having the A. A. A. officials handle it.

WOMEN DROVE SOME CARS

TRUCKS AND PLEASURE CARS CARRY THE CHICAGO ORPHANS

HINGHAM ABOLISHES TRAPS

Hingham, Mass., July 17—For the first time in some years motorists going to the south shore found today that they could go through Hingham without having policemen jump out and get their numbers for prosecution, the traps here having been abolished. This was brought about by the newly-formed Hingham Motor Club. This town was getting unenviable notoriety for arrests of motorists and many owners avoided the place all summer, making wide detours to cut it out. So the club's executive officials took the matter up with Chief of Police W. I. James. After several conferences he stated he would abolish the traps if the motorists will keep down to 15 miles in the congested part of the town, slow down and blow a horn at intersecting streets and use judgment in driving through the place. However, he reserves the right to establish traps again if necessary, so it is up to the motorists.

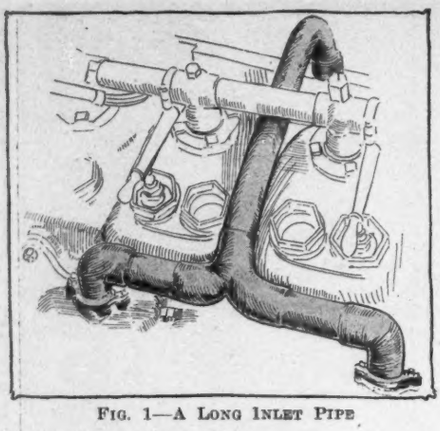


FIG. 1—A LONG INLET PIPE

LONG OR SHORT INTAKE

PITTSBURG, PA.—Editor Motor Age—Will Motor Age inform me, through the Readers' Clearing House, which of the two inclosed cuts of intake manifold is the more efficient, or whether it makes any difference if the fuel goes direct to the motor cylinders or from the one side of the motor and over the top of the motor to the intake on the other side, as illustrated in Figs. 1 and 3.—K. J. L.

All things being equal, the shorter the intake pipe the better, providing a suitable mixing chamber is provided in the carbureter employed. There are so many variables to be taken into consideration in an answer to a question of this kind that it would be unjust to pronounce one style of piping more efficient than the other. There are several motors on the market which are known to be very efficient and which have exceptionally long intake manifolds of rather small diameter; whereas, on the other hand, there are motors which are less efficient whose intake manifolds are very short and direct and of generous diameter. With a short pipe it would seem that starting the motor cold would be facilitated, as there would be less condensation of the fuel mixture by coming in contact with the walls of the inlet piping. But Motor Age knows of cars with unusually long intake piping which start quite readily when cold and of other cars with short direct piping which do not start so readily. If the piping is of the proper size, and free from leaks, the motor well designed and the carbureter efficient, the actual length of the inlet piping will not make a very great difference in the efficiency of the motor, providing it is properly arranged and designed.

ASKS ABOUT THE BILLY

Fayette, O.—Editor Motor Age—Through the Readers' Clearing House will Motor Age tell me where the Billy car is made, also give a description of same.—George A. Vine.

The Billy car is made by the McNabb Iron Works, Atlanta, Ga. It is a two-passenger roadster having a four-cylinder motor, a leather-faced cone clutch and a two-speed selective sliding gearset, all combined to form a unit power plant. Drive from the power plant to the rear-axle is by propellorshaft. The four cylinders are cast en bloc, in one piece, water-cooled, with the waterjackets and valve chambers cast integral and with a bore and stroke of 3⅜ and 4½ inches, respectively, giving 18.1 horsepower A. L. A. M. rating. They are of the L type, with all valves located on one side and operated from a single camshaft contained within the crankcase. Cooling is by means of a thermosyphon system, in which a vertical tube radiator and belt-driven fan are principal features. Ignition is by means of a jump-spark system with current supplied by battery and coil. The carbureter is of the float-feed type with gravity feed from the supply tank, and lubrication of the motor is by means of a circulating system. The rear axle is of the semi-floating type; an I-beam front axle is employed; wheels are fitted with 32 by 3-inch tires; the wheelbase is 88 inches; and springs are of the full elliptic type. Control is conventional with one brake on the propellorshaft and the others on the rear-wheel drums.

The Readers'

EDITOR'S NOTE—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired.

AUTOGENOUS WELDING QUERY

Cambridge, Ill.—Editor Motor Age—Through the Readers' Clearing House will you inform me if a Prest-O-Lite gas tank and an oxygen tank could be used successfully for autogenous welding.—P. A. Johnson.

Motor Age is advised that Prest-O-Lite tanks are not suitable for use in autogenous welding. It is understood that the use of these tanks for such a purpose would be an infringement of the patents under which the Prest-O-Lite tanks are made.

TESTING WHEEL ALIGNMENT

Chicago—Editor Motor Age—Will Motor Age, through the Readers' Clearing House columns, give suggestions for testing the lining of motor car wheels?—Louis A. Seeberger.

In Fig. 2, one method of testing the alignment, or of lining up motor wheels is illustrated. It consists in stretching two pieces of strings S across four chairs C, or the like, as indicated, so that a difference in the alignment of the wheels may be observed. The string is stretched so it almost touches the tires, say about ⅛ inch away from them, and it should be on a level with the floor at the height of the axles or immediately above or below them. If the front axle is not as long as the rear one, as sometimes is the case, the method will be just as effective, but the fact should not be overlooked; the two strings should be parallel, just as far apart at one end as at the other, and also parallel with the side members of the frame of the car. When the strings have been stretched as above described, take a ruler and measure the distance between the felloes of the wheels on both sides of the hubs. If there is a difference in the measurements either the wheels are out of true or mis-alignment is present. Suppose, for instance, you started with the right rear wheel, and on measuring the distance from the string to the felloe behind the hub, toward the back of the car, the distance was 2 inches, and on measuring in front of the hub the distance was found to be 2½ inches. Although it is possible, you hardly would expect the wheel to be out of true to this extent, so pass around to the other side of the car, and measure up the left rear wheel in the same manner. Here you find that this wheel also is out of line to the same extent only the front of the wheel is closer than the back. A little thought will suffice to show that this is as it shrould be, and all that will be necessary to rectify matters will be to adjust the radius rods, if radius rods are employed; if there are none, either the springs have shifted on their seats, or the leaves have been shifted, or the torsion rod is bent. If mis-alignment is found in the front wheels when tested in the same way, the springs

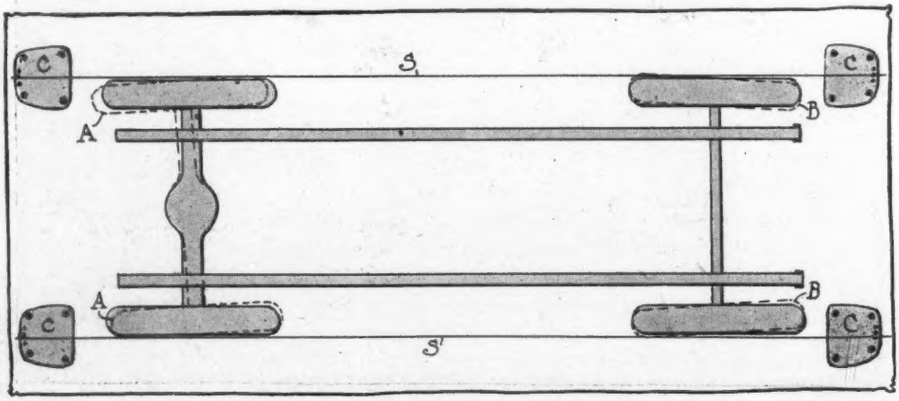


FIG. 2—SHOWING A METHOD OF LINING UP MOTOR CAR WHEELS

Clearing House

EDITOR'S NOTE—To the Readers of the Clearing House columns: Motor Age insists on having bona fide signatures to all communications published in this department. It has been discovered that the proper signature has not been given on many communications, and Motor Age will not publish such communications, and will take steps to hunt down the offenders of this rule if it is violated

may have shifted, the steering arms may be bent, the transverse steering rod out of adjustment, or the wheels or a wheel out of true. To test the trueness of a wheel, jack up the axle so that the wheel clears the floor, spin it, and while it is revolving hold a pencil point or something similar close to the felloe of the wheel, resting the hand on the knee or a block of wood so that it is steady, the regularity or irregularity of the distance between the felloe and the pencil point as the wheel revolves then will show whether or not the wheel is true.

CAN USE THERMO-SYPHON

Richmond Hill, L. I.—Editor Motor Age—Will Motor Age inform me, through the Readers' Clearing House, if it would be possible to use thermo-syphon system providing I use rubber hose connections, on a one-cylinder 7-horsepower de Dion-Bouton engine, the tank and radiator being positioned as illustrated in Fig. 4? Also explain the arrangement of tubing. Should the tank be divided?—Paul Hofer.

One authority states that in the thermo-syphon or gravity system of cooling, the bottom of the radiator should not be lower than the bottom of the waterjacket of the motor; but numerous inquiries lead Motor Age to believe that if the piping is arranged as indicated in your drawing, Fig. 4, satisfactory results will be obtained. It is not necessary that the tank be divided.

WINTON GASOLINE FEED

Vandergrift Heights, Pa.—Editor Motor Age—Will Motor Age advise me, through the Readers' Clearing House, relative to my Winton, model K. On this model the gasoline feed is a very complicated affair. Would it be possible to hang the gasoline tank under the front seat, there being plenty of room, take all the old gasoline connections off, and put another carbureter on, lowering it on a level with the crankcase in order to secure a gravity feed. The old feed goes over through the carbureter and through the pipes leading from a pump direct to the cylinders. What is the proper firing order of this motor?—J. L. B.

What you speak of has been done on not a few occasions. Motor Age knows of one instance where the change has not been a success and the parties making it have had to return to the original system. There is, perhaps, no reason if the carbureter is placed sufficiently low to insure a gravity feed on hills, why this system should not work if the details are properly carried out, but it would be most practical to have the motor overhauled by some good repairman, preferably one who has had experience with these models, and the old system maintained. These cars have been known to give excellent service with the system which you intend to redesign. If you will give your reasons for desiring the change it may be possible to aid you in getting desirable results without going to the trouble which you contemplate.

CHANGE THE GEAR RATIO

New York—Editor Motor Age—My car is a 40-horsepower Tourist, made by the Auto Vehicle Co., of Los Angeles, Cal. It is an assembled car, shaft-drive and with three-speed progressive type of gearset. The gearing is about 3¾ to 1. I would like to gear it to 2½ to 1. Will Motor Age give me some advice concerning the best method to do this?—A. J. Shafer.

The best method for you to pursue is to consult the manufacturer of your car relative to exchanging your rear axle for a new rear axle whose driving gears have a ratio of 2½ to 1. Unless your car is used in a section of the country where the roads are smooth and free from hills Motor Age would advise the change be not made without thorough consideration. The designer of the car most probably would be the best authority as to the practicability of such a change.

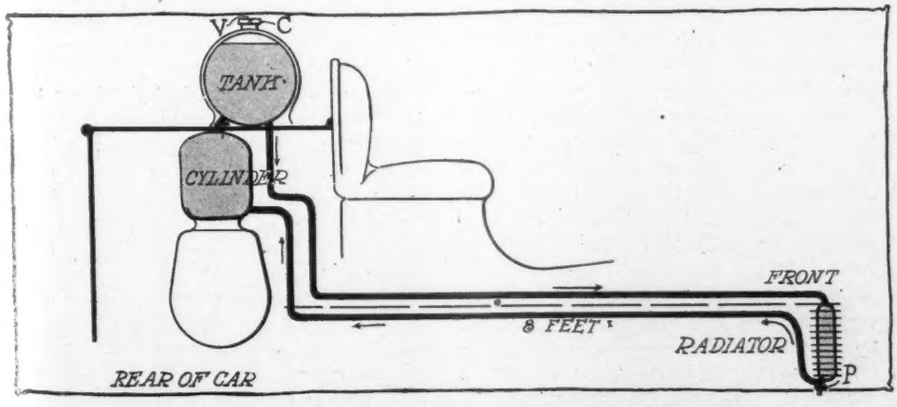


FIG. 4—PIPING UP A MOTOR CAR FOR THERMO-SYPHON COOLING

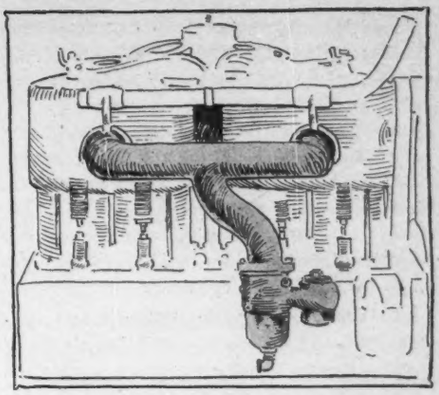


FIG. 3—A SHORT INLET PIPE

PROPER SIZE OF THE TIRES

Clifton, Tex.—Editor Motor Age—Will Motor Age kindly advise me, through the Readers' Clearing House, on the following?

1—Is Herbert Lytle still in the racing game?

2—What size tires should a car have which weighs 3,500 pounds equipped?

3—What is the horsepower of an engine which has a bore of 4½ inches and a stroke of 5¼?

4—Is the make-and-break ignition a good system?

5—What is the actual horsepower of Oldfield's Benz?—Emmerald Schow.

1—At the present time Herbert Lytle is in a state of convalescence, nursing back into usefulness a broken leg; so for the time being, he is out of the racing game. It is stated, however, that he expects to be in shape again in plenty of time to be a factor in the Vanderbilt cup race, which takes place October 1.

2—In ascertaining the proper size of tires that a car should have, it is necessary to know the load per wheel. This may be obtained by running the front half of the car onto a platform scale and weighing it, with all regular running equipment, including passengers, tools, fuel, supplies and miscellaneous paraphernalia, aboard; then weighing the rear half in the same manner, being careful that the two weights taken are about equal to the total weight of the car. As a car generally is heavier at one end than at the other, this method is employed to learn the distribution of the load. In a car weighing 3,500 pounds, perhaps 1,500 pounds would be divided between the two front wheels and 2,000 pounds for the rear ones. Without taking side thrusts into consideration, each front tire would be called upon to carry 750 pounds, requiring that the tires be either 34 by 4, 36 by 4, or 32 by 4½ inches. On the rear wheels there would be a load of 1,000 pounds per tire, requiring 36 by 4½, or 5-inch tires. Every tire manufacturer has a table showing the load-carrying

capacities of their tires and also the pressures to which they should be inflated, a copy of which may be had for the asking.

3—Approximately, the horsepower of a single-cylinder motor with a 4½-inch bore and 5¼-inch stroke, is 4.72 horsepower at 500 revolutions per minute, and 9.43 horsepower at 1,000 revolutions per minute. For multi-cylinder engines, multiply these figures by number of cylinders.

4—Yes. If properly designed and constructed, the make-and-break ignition system is known to give excellent service.

5—Motor Age has no record of the actual horsepower of Oldfield's Benz, but according to the cylinder sizes and the A. L. A. M. rating, which is based upon a piston speed of 1,000 feet per minute, the horsepower is a fraction more than 84. As it is designed to run at a considerably higher rate of speed than 1,000 feet of piston travel per minute, however, it is quite possible that at times it develops the 200 horsepower claimed for it.

STARTING THE MOTOR

Lake Charles, La.—Editor Motor Age—On my four-cylinder 45-horsepower car is a master vibrator, Splitdorf coil, through which I start the car. Will Motor Age tell me if there is any way I could put on a button so that it would produce a spark at any position and the motor would start of itself from the button when hot? Sometimes when I crank the car it will hit a few explosions and then die down, and then it will not start until I crank it six or seven times. Is this due to weak batteries? It occurred a few times when my storage batteries were freshly charged. —A subscriber.

It is possible to arrange electric fittings on your car so that a spark can be obtained on any or all of the cylinders at the same time at any position of the piston, but this would not assure that your motor would start on the spark. The spark is not all that is necessary to start a motor; there must be a combustible charge of fuel in one of the cylinders and the piston in that cylinder must be in such a position that when the charge is ignited by the spark the expansive force of the burning charge will be exerted upon it with sufficient force to compress a charge in the following cylinder to fire, and bring the piston in that cylinder over the firing center. Since you have a vibrating coil on your car, if the motor is so designed that it will start on the spark when in good order, it should start by switching on the ignition and then simply advancing and quickly retarding the ignition control lever. For a motor to start on the spark, it must be so balanced that it will stop with the crank-throws about horizontal; the compression must be fairly good, carbureter sensitive and well-adjusted, and the ignition timed and the ignition control levers so arranged that a spark can be produced in the cylinder that is prepared to fire. The reason your motor does not start more readily is that perhaps there is an air leak into your inlet pipe, the valves need grinding or there is not sufficient space between the end of the stems and the push rods, there is water or dirt in the carbureter, the gasoline is of a poor grade and does not vaporize readily, the carbureter is not properly adjusted, the piston rings are worn or stuck in their grooves, or the cylinders or pistons or both are worn.

ASKS ABOUT REMY MAGNETO

St. Joseph, Mo.—Editor Motor Age—Will Motor Age, through the Readers' Clearing House, please answer the following questions:

1—Should a Remy magneto break the primary circuit the same as on the distributor segment in passing the cable point? If so, is there any reason why the magneto could not be set by the break, bearing in mind, of course, that the spark must be distributed to the proper cylinder. The Remy directions say "pay no attention to the break when setting."

2—What will cause the exhaust from one cylinder to sound very much stronger than the rest? I have noticed this particularly on two makes of very good cars.

3—What would be the distinguishing features between a high and low-speed motor; for instance: An engine running at 1,800 revolutions per minute would be high speed and would, I suppose, have smaller bore and stroke, higher compression, larger valves proportionately, and lighter reciprocating parts proportionately, than one running at 900 revolutions per minute for the same horsepower. But what would prevent the larger engine from being speeded up to 1,800 and so delivering more horsepower and being too powerful for the rest of the chassis?—X.

Owing to the fact that there is an appreciable lag in the development of the high-tension current in the system, it is not necessary that the mark on the distributer segment and the separation of the contact points of the circuit-breaker should register or occur at identically the same time. Unless the mesh of the internal gears of the magneto has been tampered with, all that is required in setting the magneto is that the mark on the revolving distributer segment lines up with the stationary contact at the time when the spark should occur in the cylinder. It is necessary, however, that the contact points of the circuit-breaker points be clean and have a good contact bearing, and that they separate properly. The Remy company has taken the spark lag into consideration and marked the distributer segment to facilitate the setting of its magnetos. Motor Age cannot see why one should prefer the less accurate and convenient means of setting these mechanisms by the break of the primary current at the contact points of the circuit-breaker.

2—There are a number of conditions which may cause the exhaust of one cylinder of a motor to sound louder than another. Sometimes the construction of the inlet pipe is such that one cylinder will at certain speeds get a better charge of fuel than the others. Often the exhaust of the rear cylinder nearest the end of the exhaust pipe can be more easily heard and consequently will seem stronger when the cut-out is open, because the exit of the sound is more direct. The condition of the valves in the cylinders also may be such that one cylinder will have better compression than the others and fire stronger; a similar condition may be brought about through an idiosyncrasy of the lubricating system, one cylinder being so perfectly oiled that better compression is maintained therein.

3—If a motor which is designed to run at a speed of 900 revolutions per minute were speeded up to 1,800 revolutions per minute, it hardly is possible that it would develop power that would be anywhere near proportional to the increase in speed; if it did, it is quite probable that there would be excessive vibration and wear that if prolonged soon would be very destructive to the engine. The greater the power of the motor relative to the strength of the chassis in which it is installed, the greater the care necessary in operating the car. Almost any motor can be made to develop more power than the chassis can stand under certain conditions.

TOP PRESERVATIVE

Kewanee, Ill.—Editor Motor Age—Through the Readers' Clearing House will Motor Age kindly advise me if there is anything that has a tendency to preserve the pantasote of a motor car top.—S. N. Berlin.

Frank Miller's harness dressing has been recommended for this purpose and Motor Age refers you to its advertising columns for further information on the subject.

HAS TIRE TROUBLE

St. Cloud, Wis.—Editor Motor Age—Will Motor Age, through the Readers' Clearing House, tell what is the trouble with my tire, in which there is a new casing 32 by 4 quick-detachable, and new tube; with 50 pounds pressure the inner tube burst but not the casing? This tire is fitted on a 1907 Rambler two-cylinder touring car. I have blown up three new tubes in 1 hour's time without putting the machine into use. —Peter Entringer Co.

Either you have pinched the inner tube in fitting the tube into the casing, there is a nail or similar sharp object sticking in the casing, or the inner tubes are too small for the covers. Motor Age is inclined to believe that your trouble is due to neglect in removing the cause of the injury to the first tube. It is a very common occurrence for a sharp tack or other piece of metal or even glass to work its way into the casing and take up a position which will hide it from view externally and allow it to escape a casual inspection of the inner portion of the casing. By care-

fully running the hand over the entire inner portion of the casing, however, these little things are generally found. If they should be overlooked, the natural results are that every tube put into the casing will be punctured. Whether or not the puncture will be merely a pin-hole or take on the appearance of a blowout depends greatly upon the conditions, the material of which the tube is made, the fit on the rim, the nature of the object that is doing the damage, etc.

MIXING KEROSENE AND GASOLINE

Fort Dodge, Ia.—Editor Motor Age—Please advise through the Readers' Clearing House columns of Motor Age as to the advisability of mixing kerosene with gasoline, and in what proportion may such mixture be used for fuel, if at all.—B. J. P.

It is stated that after a motor has become thoroughly warmed up that it will run very nicely on kerosene alone, and often without even an adjustment of the carbureter being necessary. This is not true, however, with all motors or carbureters. The best way to learn the proportions adaptable to a certain car is to experiment with different proportions after the motor is warmed up. The great objection to using a mixture of kerosene in the fuel as a regular thing is that a means must be provided for using pure gasoline for starting and warming up the motor, and carbureter adjustments are generally necessary before the mixture will work properly.

SPEED OF THE OVERLAND

Charlotte, Ia.—Editor Motor Age—Will Motor Age kindly tell me, through the Readers' Clearing House, the best speed of the Overland models 38 without tonneau, also models 40, 41 and 42?—Subscriber.

A regularly equipped model 38 Overland roadster with a 4 to 1 gear is claimed to have shown a speed of 53 miles an hour; and it is stated that models 40, 41 and 42 have a speed of 55 miles an hour under similar conditions. It is further stated that a model 42 stripped chassis with a 3½ to 1 gear has shown a speed of 67 miles an hour at the Indianapolis speedway.

REGULATING THE CLUTCH

Detroit, Mich.—Editor Motor Age—Will Motor Age tell me, through the Readers' Clearing House, what is the best oil to use in my multiple-disk clutch? It does not take hold as it did last year, and I never used any oil. This year in overhauling the car, the clutch was taken apart and cleaned. At first I used a heavy oil, and then a thin oil, then I mixed it with kerosene, and with kerosene alone. When I used the heavy oil my gearset worked hard, and with the mixed oil the clutch will not take hold until I run on very slow speed for about 40 feet.—Simplex.

Motor Age infers that as you did not use any oil last year in your clutch, it is possible that it is designed to run dry. If you had given the name and model of your car a more definite answer could be given. If, however, your clutch is designed to run in oil cylinder oil most commonly is used with the greatest satisfaction; the gripping action of the clutch being regulated by mixtures of the oil and kerosene; if the clutch slips, use more kerosene; if it grabs, takes hold fiercely, put in more oil and less kerosene. It is possible that the shaft upon which the clutch-release mechanism operates is slightly worn, or has a very small shoulder worn upon it, which prevents the clutch from engaging tightly immediately; then again, the clutch spring or springs may be a trifle weak and rerequire replacement or adjustment.

IOWA LAW NOT SPECIFIC

Primghar, Ia.—Editor Motor Age—In various published abstracts of the motor car speed law in Iowa, failure is made to note that the permissible speed in the country is an average of 20 miles per hour. Our supreme court in a recent decision has held that this does not prevent running at a higher rate than 20 miles per hour, without violating the law. The indications are that some enthusiastic driver has had a hand in drawing the law. Attorneys generally agree that the word "average" nullifies this portion of the law. It is not specified whether the average speed shall be computed from the time the machine starts till it first stops, or whether it is the average for the season. Another provision of the law, however, is that "in no event shall the car be driven at a speed greater than is reasonable and proper, having regard to the traffic then on such highway and the safety of the public." It is possible that this provision is not specific enough to be readily enforcible.—O. H. M.

DETROIT-DAVENPORT ROUTE

Cedar Rapids, Ia.—Kindly advise me through the Readers' Clearing House which is the best route from Detroit to Davenport, Ia., by way of Chicago. I would like the total distance and the number of days the trip will consume.—L. M. Barton.

From Detroit to Chicago the route is through Dearborn, Wayne, Ypsilanti, Saline, Clinton, Cambridge, Somerset, Jonesville, Quincy, Coldwater, Lockwood, Gilead, thence to Orland, Ind., passing through Brighton, Lima, Elkhart, Mishawaka, to South Bend, Ind. From this point the route to Chicago lies through New Carlisle, Laporte, Westville, Valparaiso, Wheeler, Hobart, Highlands, Hammond, South Chicago, then Chicago. From Chicago west to Davenport the motorist has the choice of two. The route via Clinton, Ia., passes through Geneva, DeKalb, Rochelle, Dixon, Sterling, Round Grove, Morrison, Fulton, Lyons, to Clinton, and then follows the river route through Camanche, LaFollette, Princeton, La Clair and Pleasant Valley, to Davenport. The route via Ottawa, Ill., is through Naperville, Aurora, Yorkville, Newark, to Ottawa, thence to Davenport via La Salle, Peru, Seatonville, Hollowayville, Princeton, Wyanet, Sheffield, Atkinson, Geneseo, Brier Bluff, Rock River Bridge, Moline, Rock Island, Ill., where the Mississippi is crossed to Davenport. The total distance is 474.2 via Clinton, and by way of Ottawa, Ill., 482.7. The trip can be made easily in 3 days, and can be done in 2 days. Detailed information on the entire route can be secured from the Official Automobile Blue Book.

STOP GREASE LEAKING

Pensacola, Fla.—Editor Motor Age—Will Motor Age kindly inform me if there is any way I can stop the grease from leaking out of my Hudson 20 timing gearcase. I have put hemp and felt washers in, but the grease still runs out.—F. S. Renshaw.

Don't put in so much grease. It is not necessary that the timing gearcase be packed with grease. If this does not eliminate your trouble, Motor Age would advise that you consult the manufacturer, state your trouble, and have one or two gaskets or felt washers of the proper size sent you. It is assumed that the grease leaks out where the crankshaft protrudes through the case, and if a felt washer of the proper size is properly fitted at this point and the supply of grease in the case is not excessive, there should be no leakage. If, however, the leakage is around the cover of the timing gearcase, it is advisable to remove the cover, make a new gasket of paper, smear it with shellac and reassemble.

FACTS ABOUT THE ONLY CAR

Peoria, Ill.—Editor Motor Age—As one of the multitude who enjoys the many good things in Motor Age each week, I take the liberty of asking for some information through its columns. I am told there is being assembled in New York a car of French make, the engine having but one cylinder with a diameter of 6 inches and a 10-inch stroke, for which great economy in gasoline is claimed and a speed up to 60 miles per hour. It is said to be called the Only car, although this may not be correct. I would like to know through what agency or company such a car is being handled. I would also like to know how you figure the horsepower of a motor when the stroke exceeds the diameter of the piston.—C. E. Stahl.

The Only car is handled by The Only Car Company, 1919-29 Broadway, New York city. You might use the A. L. A. M. rating for this car in the following manner: Square the diameter of the cylinder and divide by 2.5, which will give you little over 14 horsepower. Now, as this formula is based on a piston speed of 1,000 feet per minute, and as the motor has a 10-inch stroke, it would develop 14 horsepower at 600 revolutions. Now, as it may be approximated, that the horsepower increases directly in proportion to the speed, the motor would develop 28 horsepower at 1,200 revolutions and 42 horsepower at 1,800 revolutions, etc.

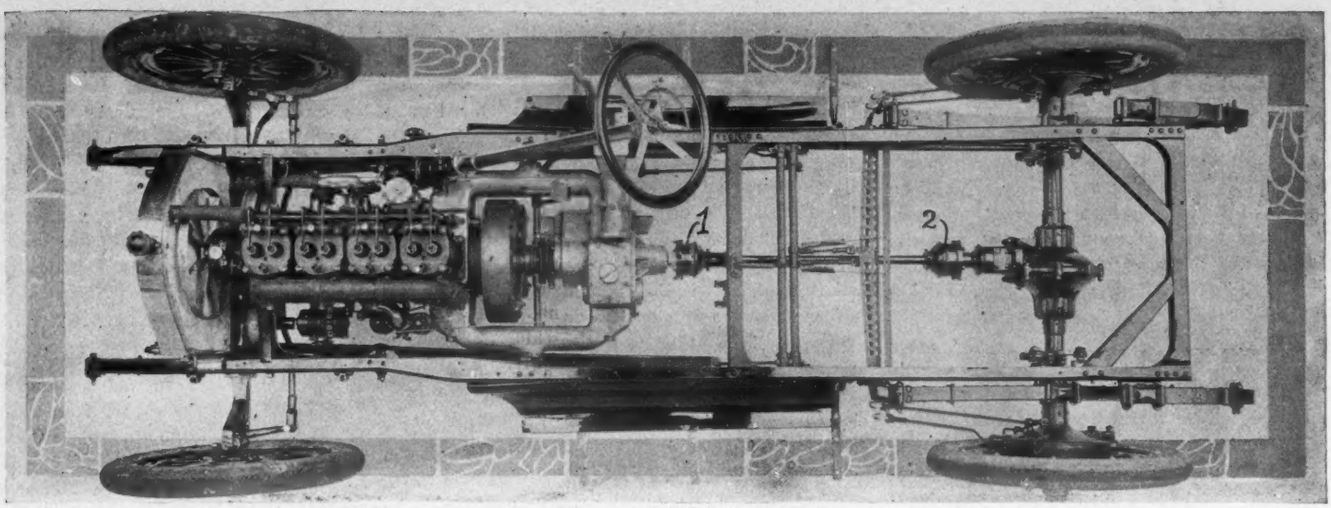


FIG. 1—CHASSIS IN WHICH GEARBOX IS A UNIT WITH THE MOTOR—1 AND 2 UNIVERSAL JOINTS

Discussing the Question of the Best

By M. R. West

THE location of the gearset on pleasure cars having shaft-drives, seemed several years ago to be a pretty well settled point, but at the present time it may be found anywhere between the engine and the rear axle. The question which naturally arises is as to which is the best location. The following are a few of the many points which may be considered. In general most shaft-driven pleasure cars may be grouped as follows:

No. 1—Those in which the gearset is practically built as part of the engine and forms a unit power plant.

No. 2—Those in which the gearset is a unit in itself and supported from the frame only.

No. 3—Those in which the gearset is located at the front end of the propeller-shaft housing and practically forms a unit with it.

No. 4—Those in which the gearset is adjacent to or forms a part of the rear axle.

In group No. 1, the weight is spring-supported, being indirectly attached to the frame, and is borne principally by the front wheels. In group No. 2 the same is true except that as a rule the location is farther back on the frame and consequently the weight is more evenly divided between the front and rear wheels. In group No. 3, the rear wheels carry about the same or perhaps a slightly greater portion of the weight than in group No. 2 and only a very small per cent of it is not spring-supported. In group No. 4 practically all of the gearset weight is borne by the rear axle and tires without the intervention of any springs. This perhaps is the most frequently heard argument against such a location since the rear tires are thereby harder worked. On the other hand, a certain amount of weight in the axle may be a good thing in that it slows down or lengthens the period of vibration of that part and therefore lessens the tendency for the brake and other parts to loosen and rattle. In a town car particularly may not the advantages be worth more than the extra cost of tires?

In group No. 1, the gearset is directly under the front floor boards and therefore may be easily gotten at for inspection as a rule. With proper design, it may be conveniently supported from above, while it is being removed or replaced in case that be necessary. Gearsets in groups Nos. 2 and 3 are liable to be more nearly under the front seat and therefore not so accessible, either for inspection or removal with the body on. This, of course, is not necessarily the case. In group No. 4 inspection is easy from the rear and in some cases the parts may be assembled from the same convenient position. In other cases, adjustments may be made while in a sitting position under the car and the work will be at a more convenient level than in cars under groups 2 and 3.

In groups Nos. 1, 3 and 4, there is only one universal joint necessarily required, since the gearset either is held rigidly in line with the engine or the rear axle, thus leaving only one point at which angular motion must be cared for. With group No.

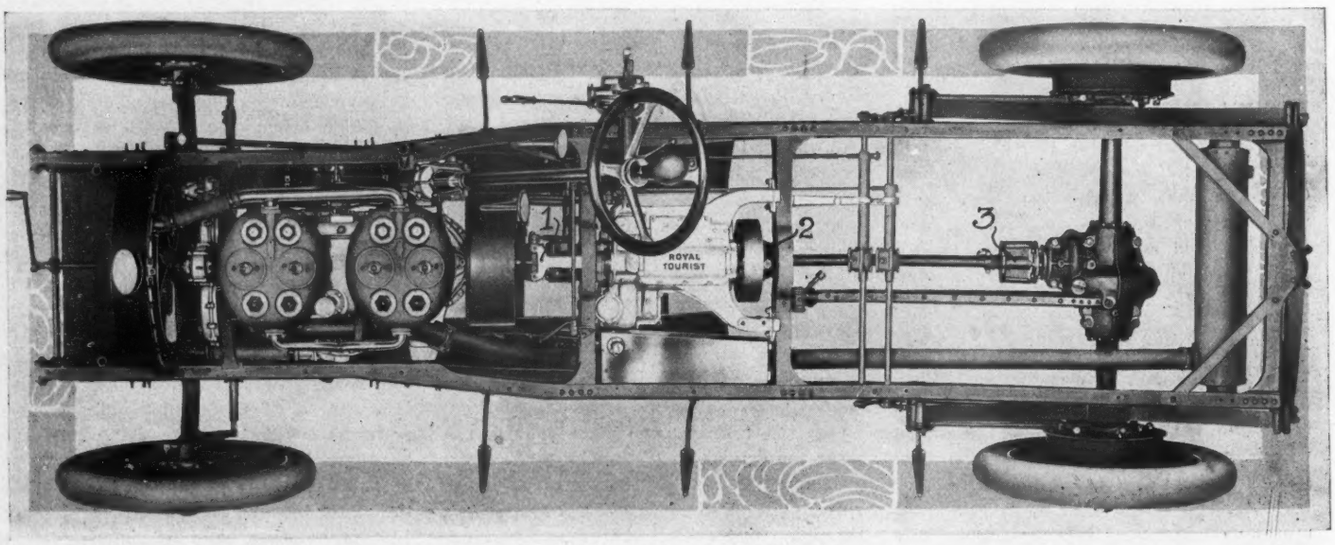


FIG. 2—CHASSIS IN WHICH THE GEARBOX IS A SEPARATE UNIT—1, 2 AND 3 UNIVERSAL JOINTS

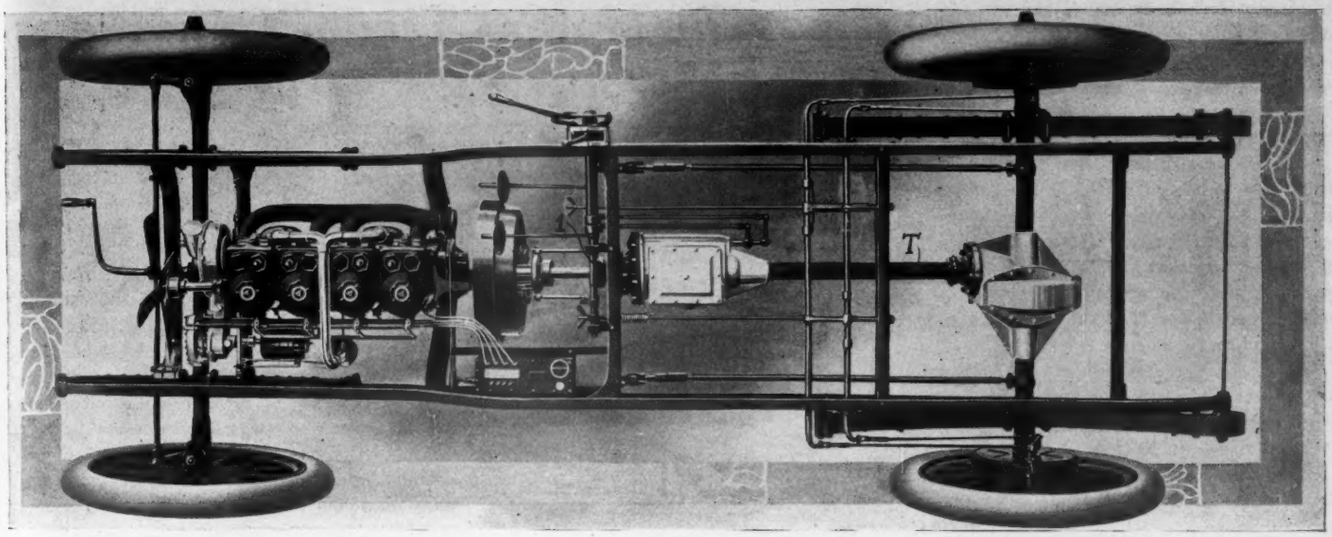


FIG. 3—THE GEARBOX IS A UNIT WITH THE PROPELLERSHAFT HOUSING —1 UNIVERSAL JOINT, T PROPELLERSHAFT TUBE

Location for Gearset in Motor Cars

2 it always is customary to place at least one flexible joint between the gearset and the engine to care for any relative angular motion between the two. Many do not consider it good design unless two joints, a short distance apart, are used in order to better care for any chances of the gearset shaft being to one side of as well as at an angle with the engineshaft. Whether one or two joints are used, it is desirable that the parts be as nearly as possible in alignment and hence group No. 2 requires more skill and time to properly assemble than do the other groups. It would thus appear that group No. 2 takes three times as many joints as are necessary—two between engine and gearset and one between gearset and rear axle. In all groups, if only one joint is used between the rear axle unit and the next unit ahead, care should be taken to see that the design is such as will allow the rear unit to swing easily about that joint as a center. Many designers, rather than care for this last point, prefer to do away with a propellershaft housing and place a joint at either end of the shaft. If the latter be the case, the number of joints used is in the ratio of 4 to 2.

Relative Noise in Case

Everybody recognizes that a tuning fork which when struck and held in the air emits very little sound, will, if held in contact with a table or box, have its sound greatly magnified. To a great extent, the same holds true regarding the noise given out from the gears or the gearset. In other words, the more solidly the gearset is connected with the body, the greater the sound will be magnified. For this reason, the location at the rear axle, as in group No. 4, offers perhaps the greatest advantages in this respect, while group No. 3 comes next.

During perhaps the majority of the time, most cars are driven with the direct drive in use and while this is the case none of the shafts between the engine and rear axle is submitted to a torque greater than that of the engine. But since all parts must be designed strong enough to withstand the greatest strains rather than the average, the low-gear conditions must be considered. Assuming that the torque with low gear is four times that with high or direct, let us see what parts are affected thereby. The reduction in speed and increase in torque is brought about in the gearset, hence none of the parts in front of it is subjected to the increase. In groups Nos. 1 and 2 this means that the propellershaft as well as the universal joint connecting it with the transmission must be designed for the greater load. With the arrangement in group No. 3, the universal joint may be made lighter since it is ahead of the gearset and therefore not subject to the increase of torque. With group No. 4, the propellershaft also may be made lighter and more flexible. The latter indirectly affects the noise question, since any strains which tend to bend the propellershaft out of proper alignment will, with a stiff or rigid shaft, more probably throw the gears at its lower end out of proper mesh than when the shaft is light enough to bend slightly

Whenever any torque or twisting force

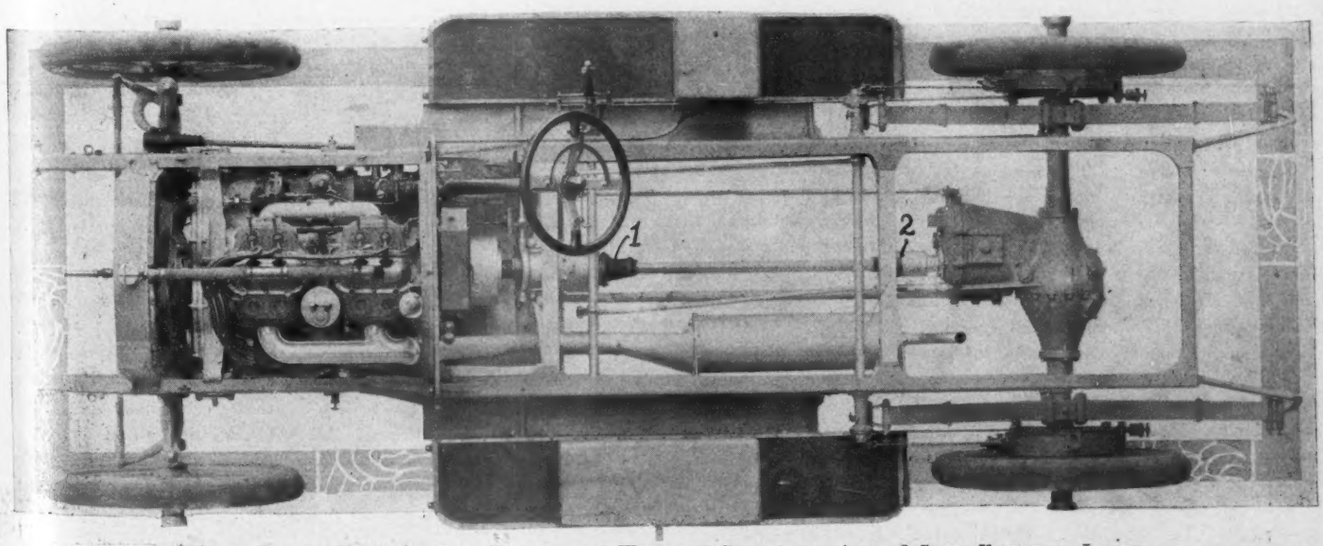


FIG. 4—THE GEARBOX IS A UNIT CONSTRUCTION WITH THE REAR AXLE—1 AND 2 SHOW UNIVERSAL JOINTS

originates in a body and is transmitted to another, there must be an equal and opposite torque or reaction tending to rotate the first body in a direction opposite to that of the second. Thus the torque developed by the engine is resisted by its supports which rest on the frame, thus causing the body to tip to one side until further motion is prevented by the springs on one side of the car carrying more load than those on the other. This is true with all cars carrying the engine in the front, as usual, regarduess of what group it may come under. In cars with the gearset located as in groups Nos. 1 and 2, it will be evident that the gearset case must resist any torque which originates within it. On direct drive this amounts to nothing, but on the low gear assumed above, the torque transmitted from the gearset to the propellershaft is four times that which it receives from the engine, hence its case must resist the difference, and this then increases the tendency to tip the body to one side. In groups Nos. 3 and 4 the gearbox is prevented from rotating not by its connection with the frame, but with the rear axle, hence the tipping tendency of the body is caused by the engine reaction alone. Any additional reaction due to the gearset is taken up by the rear axle housing to which it is rigidly attached. The difference between groups Nos. 3 and 4 is that in the former case the propellershaft housing must transmit this reaction to the rear axle, while such is not the case with group No. 4. If, as is usual, the propellershaft housing acts as torsion member for the rear axle, consideration should be given, when designing for group No. 3, to the fact that it must resist a severe twisting action as well as a binding action and that both are maximum at the same time. It is thus evident that as regards weight, group No. 4 has perhaps a slight advantage over any of the others.

Some Miscellaneous Considerations

The matter of connections between control levers and gearset is most easily taken care of with cars in groups Nos. 1 and 2, but the advantage over groups Nos. 3 and 4 is slight and due to the connections being somewhat shorter and lighter in weight.

Road clearance is little affected by the location of the gearset, although the damage done in case of an accident may be to a certain extent. With the gearset placed as low as in group No. 4 it may be in greater danger of being damaged by impact with an obstacle in the middle of the road, but if, as is quite customary, the minimum road clearance is under the front axle, it would seem that this feature need scarcely be given second thought.

If the loss of lubricant from the ends of shafts be considered, one is liable at first thought to say that any combination of the various units or parts which will reduce the number of exposed shaft ends or bearings, should be beneficial. Perhaps the only exception to that statement may be said to be due to the fact that adjacent parts do not always call for the same kind or grade of lubricant. The most trouble from this source perhaps occurs in cars of group No. 1, the majority of which employ some style of disk clutch, which runs in a separate compartment from either the gearset or engine and requires a lubricant at times different from either. It is quite customary to thin the clutch lubricant by the addition of kerosene, and if this works through from the clutch compartment to the engine crankcase, the clutch is not only starved but the engine is made to smoke more than is desirable. On the other hand, if the crankcase oil leaks into the clutch, the latter is liable to become flooded or drag. For similar reasons it is not desirable to have leakage between the clutch and gearset. Leakage between gearset and rear axle not being so objectionable, it would seem that group Nos. 3 and 4 would have the advantage as regards this respect. The matter of leakage can be so well taken care of or prevented that it is probably not of great importance.

Question of Locality

Other points might be mentioned, but the writer is inclined to believe that no general statement would be correct which said that any one of the four locations mentioned was in all cases best. What may be best in one particular may be the worst in another.

Tips On Motor Trade Conditions

THE United States consul-general at Monterey, Mex., Philip C. Hanna, writes the Daily Consular and Trade Reports that while 3 years ago motor cars were hardly known in that city, today thirty-two cars appear on the city register, 90 per cent of which are American made. Two well-known car manufacturers are represented, and there is one well-managed garage with modern conveniences. A company has been formed for the purpose of putting in a taxicab service. It claims to have six American machines en route and that several more will be ordered in the near future. The touring car type is unquestionably the most popular.

"Prices at Monterey," says the consul, "are based on factory prices plus freight, commission, and Mexican custom house duties. The touring car type is sold for $1,500 to $2,000 United States currency, and roadsters for a little less. A few more expensive cars are in use. The general expense of repairs is not much more than in a medium-rough country in the United States, nor will the amount of fuel or oil used be much greater. Monterey garage charges are $7.50 United States currency per month. Seventy per cent gasoline sells at 32 cents per gallon and lubricating oils at 55 cents per gallon. A city license costs $1, and monthly taxes are from $2 to $5, according to size of machine. Special permits and a $250 bond are required to enter the Porfirio Diaz park. Special permits are also required for racing. Competent Mexican chauffeurs are to be had for $25 to $37.50 per month.

Monterey Citizens Wealthy

"While the American made machine is much in the lead at present, the Monterey field is large and wealthy, and the chances for European cars are tempting, providing a good selling system is adopted. The American manufacturer can, however, combat such competition by considering a few points, some of which may seem out of line to the American who has not had actual business experience in a foreign country and has not been thrown into social and business relations with the people themselves. The idea of having a general agency at Mexico City with subagents in northern Mexico is considered bad. The Monterey agent should deal direct with the manufacturer. The manufacturer must take into consideration that agents in Mexico, as in any other foreign country, have difficulties and peculiar conditions to contend with which are absolutely not known in the United States. The amount of money that can be invested in motor cars—cash down—by a prospective agent is not the most important point to consider. The agent should, above everything else, have a good name; he should receive the very best commissions possible to concede, and the manufacturer should give him the same help in the way of general and local advertising that is given agents in the United States. Advertising in publications in the United States does not cover the ground, hence attention must be turned to Mexican publications and other mediums operating in the territory, or part of Mexico, desired to be covered. Advertising should not be placed by the manufacturer himself, though advertising agencies in the United States, or through any other source, without first consulting the agent in the territory to be covered, as conditions are entirely different from those in the United States. If the agent himself does not understand the science of advertising and the worth of the different mediums, he can easily procure reliable advice from competent persons on the ground. The manufacturer who contracts with his agent to the effect that the agent is to stand all expense of advertising is likely to be the loser in the long run.

"Generally speaking, the Monterey streets are very good. The city contemplates repaving all the principal streets. The wide and well paved drive, Calzada Union, is about 2 miles long and wide enough for twelve carriages to stand abreast. All in all, Monterey and territory for hundreds of square miles around it con-

Furnished by Uncle Sam's Consuls

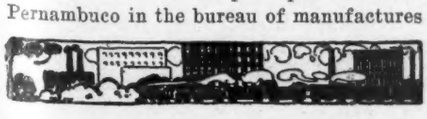
stitute a most interesting field for the manufacturer and the motorist. While the roads outside the city are not the best, they are passable, and Monterey machines are running out into the country in every direction from 50 to 100 miles, and many times much farther. The wealthy planters are beginning to see the advantage of the motor car as a means of transportation between the city and their lands, even at long distances. The strong, durable machine, a good hill-climber, and one that will stand muddy roads, as well as being protected from the dust, is the one that will eventually win in this section. The agents should carry a full line of parts, or at least those parts which experience has shown most likely to be needed.

"The question of credits is no more difficult here than at home. Only well-to-do people will purchase cars, and such people are good credits. The national and individual likes and dislikes should be carefully studied and catered to. A prospective purchaser might have his car decorated in some particular way that suits his taste, or he might want his car to have a name. All Mexican farms and plantations, as well as city and crossroads stores, have a name."

Opportunities in Brazil

Consul P. Merrill Griffith, of Pernambuco, Brazil, writes that there is a demand for motor cars in that city and vicinity, and although few of the streets are smooth and attractive, most of them being old and paved with heavy cobblestones, there are at present about 100 passenger and freight machines in use.

"This number is considerable, in view of the fact that the first car was imported scarcely 2 years ago and that there are some disadvantages affecting their ready introduction," he says. "Their popularity, however, is constantly increasing, and the demand seems to be chiefly for the medium-weight freight and passenger cars. Those in use are of French and English manufacture, and I have so far seen only one kind of American car in operation. The climate here, on account of the excessive humidity and heat, may be a little harder on rubber, steel, leather and polished surfaces than that of many other countries, yet, considering the high standard of American machines, especially with respect to their durability, attractiveness and price, there seems to be an excellent opportunity for their introduction. A competent agent understanding the business customs and usages of these people and thoroughly conversant in Portuguese, would be the most effective means of securing and extending trade, but, should this be inconvenient, American manufacturers interested can obtain the names of the principal dealers in Pernambuco in the bureau of manufactures at Washington, if they desire to investigate for themselves."



Consul Stuart K. Lipton, of Karachi, India, writes that many letters and catalogs are received at that consulate from manufacturers of motor cars in the United States, and that almost all of the cars described are unsuited for that market.

"There are not more than 200 miles of paved road in Sind, a district covering more than 53,000 square miles, about half of this being in Karachi, and dust storms are almost continuous, so that there is not much incentive toward the use of touring cars," writes the consul. "The average native seems unable to adapt himself to changed conditions. He has been accustomed to bullock carts all his life, and has taken his time in getting out of their way. When a vehicle approaches him at a much greater speed he cannot realize the fact, and is almost sure to go the wrong way, and the car must be stopped instantly, a procedure somewhat disastrous to the heavy car. Rubber deteriorates rapidly and roads are bad, so that the car should be light. Almost every house in Karachi is provided with stables, which were built for horse vehicles, and are consequently too short for the large car, and the roads are full of sharp turns, so that a long wheelbase is a source of trouble. Practically the only use for cars is as a means of transportation for business men and their assistants. It is the custom for these men to be allowed a garri, or victoria, but it is bad policy to expect more than 10 miles a day from a horse in this climate. Finally, the city of Karachi, being comparatively modern in its development, there are none of the old seignoral business houses that are to be found in other parts of India. The average man of business is an agent and not a partner of the house he represents; he is on salary, and cannot afford the expensive car. The result is that the ideal car for Karachi, and this means almost every other city of northwest India as well, is a small, light, two-seated car, simple in its construction and easy to operate, with a wheelbase of 90 inches or less, and a low price. A rumble seat should be added for the native caretaker, who invariably attends the car.

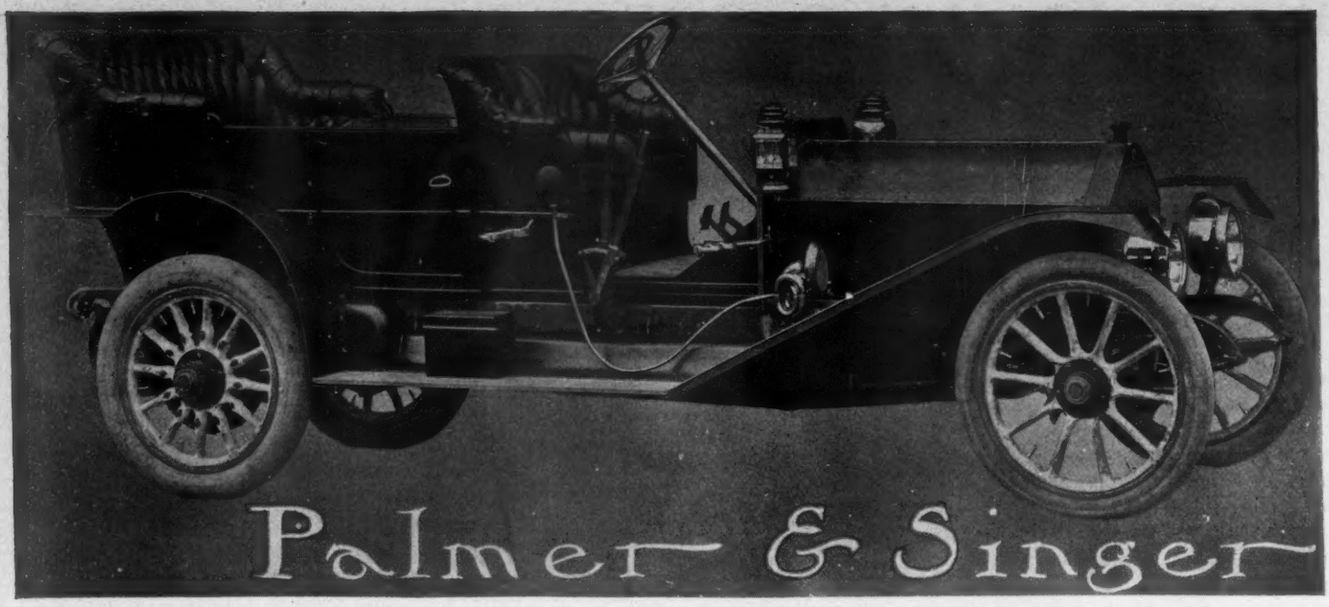
"A car of this type, with an average mileage twice that of a garri, can be operated with average care at a monthly cost of 50 rupees, or $16.22. This will include the cost of renewing the inner tubes every year and the replacing of the shoes each second year. As a garri cannot be rented for less than 65 rupees, or $21.08, per month, it is quite favorable to the owner of the car. I am convinced that a motor that can be sold here for 2,500 rupees, or $811, would do very well. At present there are sixty-four motor-driven vehicles in Karachi, including bicycles. Gasoline can be obtained readily in the city for $1.76 per drum of 5 American gallons. In the fiscal year 1907-8 the imports of such vehicles at Karachi were valued at $43,255, all being supplied by the United Kingdom. In 1908-9 the United Kingdom furnished $43,846 and the United States $1,795. In spite of the imports being credited chiefly to the United Kingdom, most of the cars in use are French. Having been exported to Karachi from England, however, they are credited to the latter country."

Condition in Jamaica

Consul Frederick Van Dyne, of Kingston, submits the following report on the motor car trade in Jamaica:

"Until the beginning of the recent tourist season there were not more than half a dozen motor cars owned in the island, but with the advent last winter of the Jamaica Motor Co.—organized and managed by Americans, although there is some Jamaican capital invested in it—there has been a marked increase in the use of motor cars, and there are now over twenty-five owned here, besides those belonging to the company. This company has at present fifteen cars in service—ten five-passenger, one four-passenger, three twelve-passenger and mail cars, and one large truck for hauling freight. Besides arranging several attractive tours around the island, the company maintains a regular daily service, carrying passengers and mail between Kingston and Port Antonio. It has the contract for carrying the mails, and runs Pullman motor mail coaches, having seating capacity for twelve passengers, with separate compartments for mail and baggage. With a 60-horsepower truck specially fitted for the purpose it carries freight in parts of the island not reached by the railroad. The rates charged by the company for carrying passengers over the regular route in the mail and passenger car are 3d, or 6 cents, per mile; per day for car, $20; per hour, $4.50. The company has a well-appointed garage where repairs are made and machines, supplies and accessories are sold. It handles only an American motor car. The manager states that the volume of business has exceeded expectations. Another American motor car firm has a local agency in this city. Motor delivery vans are used by a local bakery establishment.

"There are over 2,000 miles of excellent roads in the island, which are constantly kept in repair by the colonial government. The unusual combination of mountain, ocean and tropical scenery afforded here makes Jamaica a particularly attractive field for motorists. As the country is mountainous and the traffic at times heavy, motors specially constructed for climbing are required. The climate causes exposed metal parts to tarnish quickly, and leather discolors readily. Any improvements designed to obviate these difficulties would prove popular. The number of sales of high-priced cars is not likely to be great. The general demand is for a strong, well made car of moderate price, not to exceed $1,000 to $2,000."



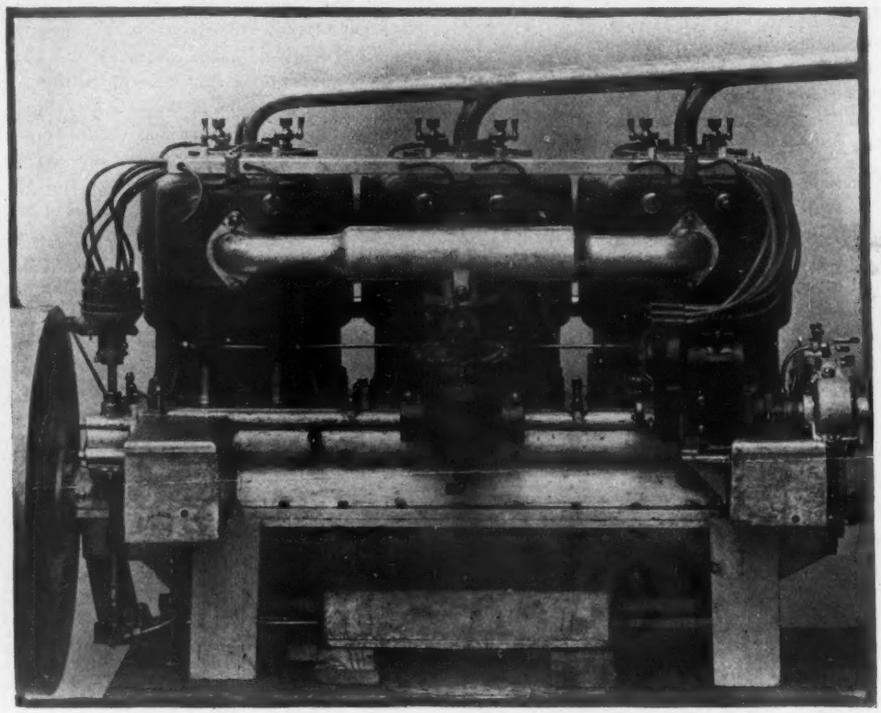
A VIEW OF THE 1911 PALMER & SINGER, SIX-CYLINDER, 60-HORSEPOWER TOURING CAR

FOR 1911 the Palmer & Singer cars are offered in four models, two six-cylinder models and two four-cylinder types. Of these four models two are new ones to the public. In the six-cylinder field the six-40 model is new, being intended specially for those six-cylinder devotees who want a medium-powered car of this type, the six-60 of the present season being continued to satisfy those six-cylinder enthusiasts desiring a high-powered machine. In the four-cylinder field the four-30 of the present season is continued, but a four-50 has been added in order to satisfy those four-cylinder motorists wanting plenty of power. These four models ranging in steps of 10 from 30 to 60 horsepower cover the popular gamut of motor power specially thoroughly and have all the other specifications in harmony as is indicated by the motor dimensions and wheelbases which are as follows:

Model	Bore	Stroke	Wheelbase
Four-30	4¼	4½	120
Four-50	5½	5¼	129
Six-40	4	4¾	125
Six-60	4⅞	5½	138

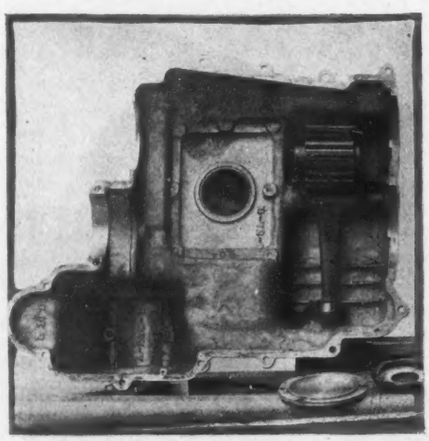
Four Cylinder Sizes

These cylinder dimensions show that the line includes four different cylinder sizes. In the matter of design of cylinder casting considerable latitude is shown in that on all models except the four-30 the cylinders are T-head types with opposite valves, this little model, however, employing the L type of casting with both valves on the one side. Still another difference in cylinder construction rules, in that the six-40 has the castings in threes, that is two groups of three cylinders in each, whereas all of the other models use cylinders cast in pairs. Casting cylinders in threes is gaining in popularity in Europe at the present time, the leading argument for it being that the amount of space required can be considerably reduced with this construction. Where cylinders are cast in threes it is only necessary to use three crankshaft bearings instead of four if casting in pairs is adopted. The latest Renault six adopts the three-cylinder casting design.

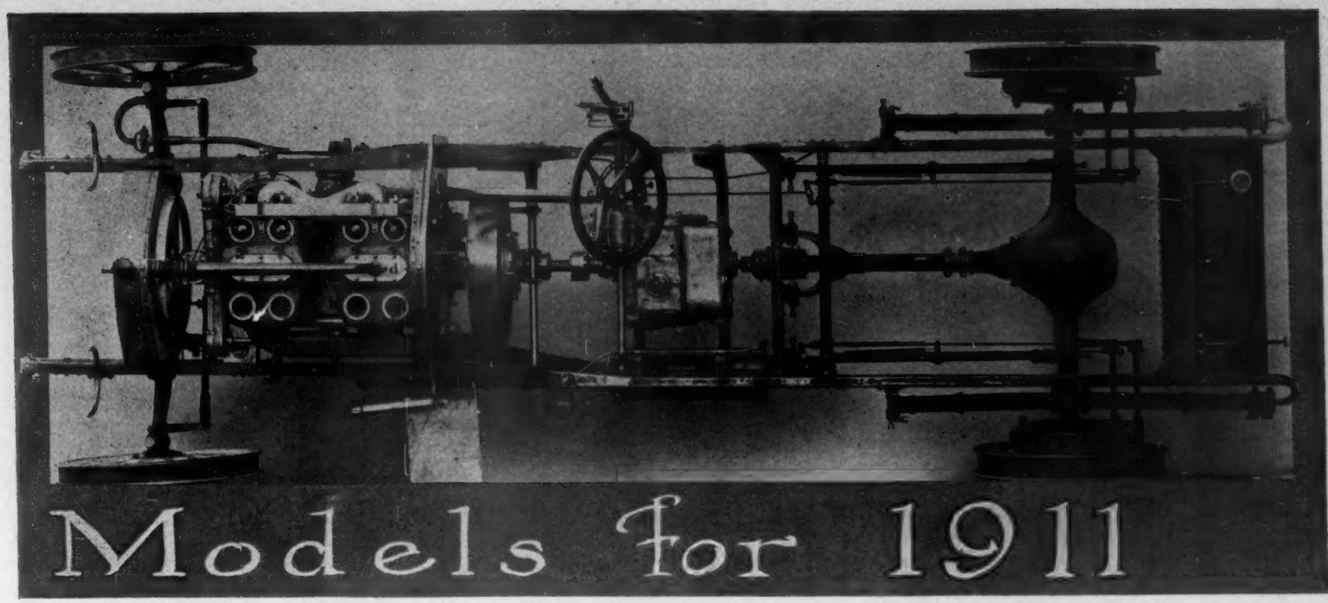


THE SIX-CYLINDER, 60-HORSEPOWER PALMER & SINGER MOTOR

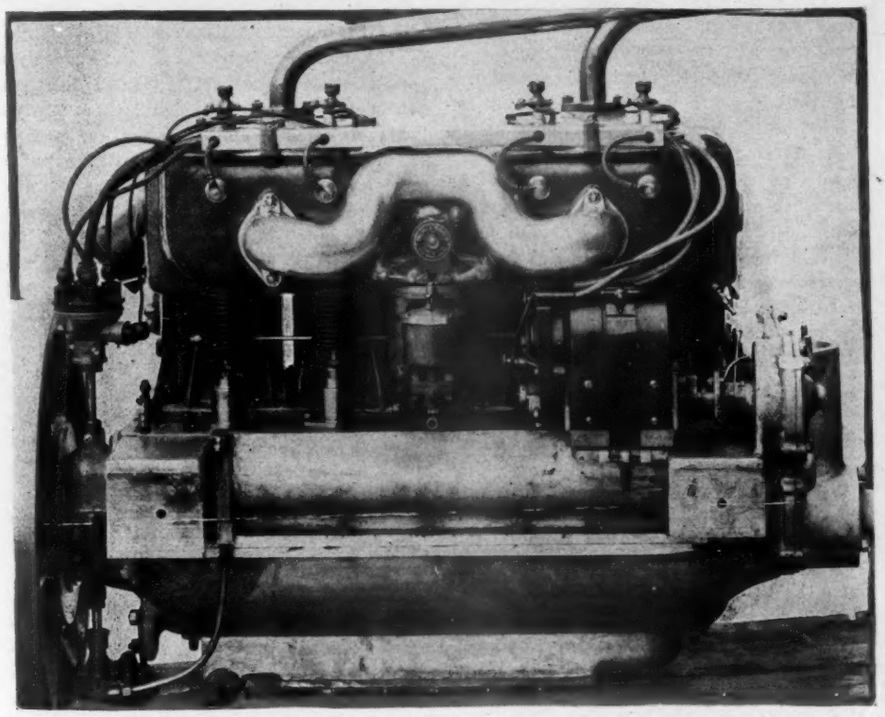
Excepting in matters of cylinder design and construction the principles of construction underlying the Palmer & Singer lines are practically identical in all four models and are briefly as follows: Forced water circulation in the cooling systems supplemented by fans behind the radiators; circulating oil systems furnishing forced and splash lubrication; double ignition systems with separate sets of plugs. Four-point suspension is employed for both motor and transmission. All models use the multiple-disk clutch, four-speed selective gearset, sliding block universal



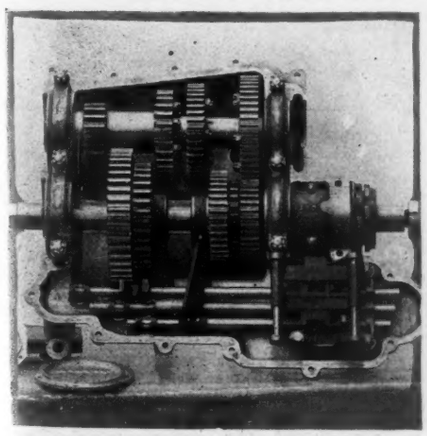
THE GEARCASE COVER REMOVED



A Plan View of the 1911 Palmer & Singer Chassis Showing the General Arrangement of Its Features



The Four-Cylinder, 50-Horsepower Palmer & Singer Motor



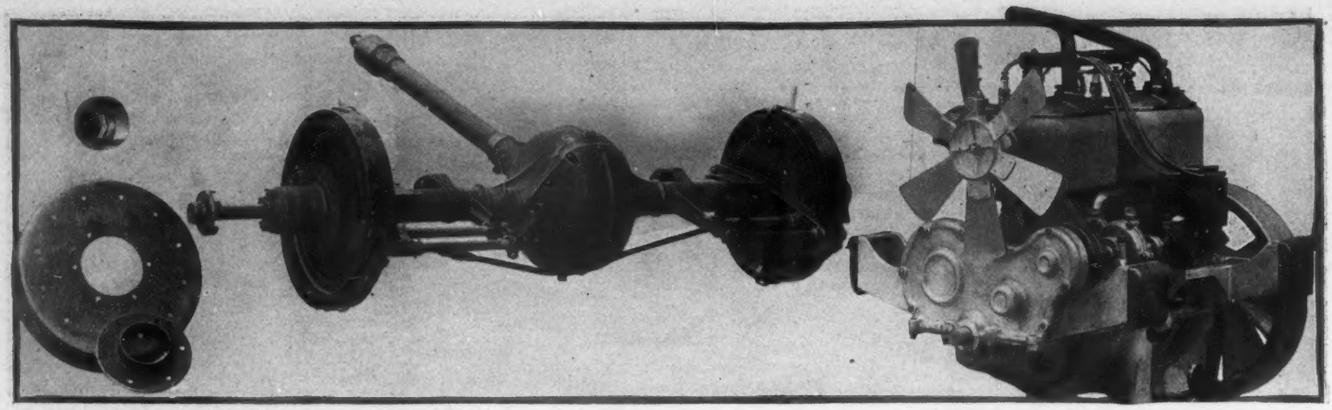
The Four-Speed Selective Gearset

joints at the forward end of the propeller-shaft, which, by the way, is enclosed in a torsion-tube, and floating rear axle. The steering gear is of the irreversible worm-and-nut type; brakes are of the internal and external type on the rear wheel drums; and except the town car which employs the smaller chassis, all have 36-inch wheels and long flat semi-elliptic springs. The town car uses 34-inch wheels, three-quarter-elliptic springs in the rear and a double drop frame. All frames are narrowed in front to obtain a small turning radius and are of channel construction; and the front axles are one-piece I-beam drop forgings. The body types used, included all regular touring and torpedo types, limousines and landaulettes and a number of special bodies that are of unique and exclusive design.

Motor of the Six-60

The motor in the six-60 can be considered typical of the company's line and it carries as a leading characteristic of conventional construction a two-part aluminum crankcase, the upper part or working half, as it might be designated, supporting the four crankshaft bearings as well as taking the complete support of the power plant on the main members of the frame. The lower part of the case is merely an oil receptacle. In supporting the motor through the upper half of the crankcase four points of suspension are provided and each motor arm by having an overhang resting on the top of the frame eliminates the shearing strain from the supporting bolts. The use of wooden blocks between the supporting arms and the frame is looked upon to absorb considerable vibration and also act as a reinforcement.

From a manufacturer's viewpoint in which the grade of materials selected for the various motor parts and the workmanship on each is considered, the motor is a careful study. Beginning with the cylinders, which are of selected gray iron, and ending with the gas manifolds, which are made particularly large and free from short corners, in order to give free entrance to the entering gases as well as unhampered exit to the burnt products of combustion, there is not a detail but what has received its consideration. From a standpoint first of material it will serve to note that the crankshaft is a hand-forging of alloy steel given the usual heat-treating attention which alloy steels demand; the camshafts are forgings of special steel; connecting rods are forgings of alloy steel heat-treated; the flywheel is a steel casting attached to the crankshaft flange by six bolts; and bearings used are of the plain type in all except the little six, which has a ball bearing in front for the



VIEWS SHOWING FLOATING REAR-AXLE CONSTRUCTION OF PALMER & SINGER CARS AND THE L TYPE MOTOR USED IN THE SMALL ONES

crankshaft. Throughout the motor babbit bearings supporting the crankshaft at three points are used, and in the lower ends of the connecting rods, whereas it is replaced by bronze in the upper ends of the connecting rods.

Reducing Noise

To reduce noise the tops of the valve-lifters are provided with fiber inserts which deaden the noise when these lifters strike upon the bottoms of the valve stems. The adjustment of the valve lifters is by a set screw and locknut on the upper ends of the pushrods. The timing gears, housed in an oil-tight compartment at the forward end of the motor, are keyed to the end of the camshafts and have bronze facings bolted to steel spiders. A removable cover on the timing gear housing renders the gears accessible and noiseless and facilitates lubrication. To provide easy starting the exhaust camshaft has a compression release fitted, the operation of which is through a lever beneath the base of the radiator. The proper timing of the valves is indicated by markings on the flywheel above which is an arrow secured to the motor base marking the top dead center of the flywheel.

By using opposite valves, locating the carbureter on one side and the exhaust manifold opposite, a fairly symmetrical arrangement of other parts of the motor accessories is possible. For example, the exhaust camshaft through a bevel gear drives the water pump, the location for it being desirable in that the water taken from the base of the radiator by the pump is at once delivered into the hottest part of the waterjackets, namely, immediately beneath the exhaust valves. On the other side of the motor the intake camshaft through similar bevel gears drives a divided vertical shaft on the lower end of which is the gear oilpump and on the upper end is the commutator. From this bevel gear the magneto is also driven. Either the water pump or the oil pump can be removed without molesting the timing gearcase and using a universal coupling in the magneto gear adjustable through set screws also permits of magneto adjustments without interfering with or removing the cover of the timing gearcase.

Motor lubrication is cared for by a circulating system, the oil reservoir extending for some length below the lower part of the crankcase. The gear oil pump placed at the rear of the crankcase delivers oil direct to the four main bearings of the crankshaft and camshaft, the oil flowing through passages cored in the crankcase and thereby eliminating special oil piping. Special oil pipes connect with the timing gears and cylinders and another one leads to the sight feeds on the dash. A petcock on the dash regulates the supply of the six cylinders. Within the crankcase and cylinders splash lubrication is used and is made possible by cross partitions in the crankcase base which form a separate compartment beneath each pair or cylinder castings. The connecting-rods dip into these oil wells the splash therefrom oiling the upper and lower connecting rod bearings and cylinder walls. All sediment in any one of the oil wells collects in the base and a constant stream of oil from the pump causes a continual overflow of oil which eventually reaches the oil well in which the pump is located where it is filtered and once more started on its circuit of the bearings, the cylinders, the timing gears and the crankcase. The supply of lubricant in the crankcase has to be replenished from time to time, this being done through fillers in the arms of the case, these fillers having fine mesh wire screens for straining the oil. The proper oil level in the case is indicated by a glass sight on the outside of the crankcase on the exhaust side.

But all of the attention given on these motors is not centered on the internals, if they may be so designated. On the pump and magnetoshafts are compression grease cups as well as one on the fanshaft. The multiple-disk clutches operate in oil and the providing of an oil plug permits of readily adding the necessary lubricant or should it be necessary to withdraw the oil a similar plug can be removed to do so. Makers are today realizing that it is often necessary to withdraw dirt and wornout lubricant, so as to use fresh oil, and the means for conveniently withdrawing oil are as important as those for supplying it. The days are fast passing when it is necessary to remove the mud apron in order to drain the dirty oil from the motor.

The lubrication of the other chassis parts is well cared for, all spring shackle bolts, torsion-tube bearings, steering knuckles and steering rod connections being fitted with oil or grease cups.

The Carburation System

Of primary importance in connection with the motor after the lubrication thereof is the carburation system and in this a certain choice is given, namely gravity gasoline feed on small runabouts, although pressure feed is the one regularly fitted on all models. Where pressure feed is supplied, the pressure is regulated by a valve on the exhaust side of the motor, this valve possessing a safety adjustment. A gauge and hand air pump are furnished on the dash. The Palmer & Singer carbureter is a three-jet type: For starting and slowing running nozzle No. 1 is used; for faster running nozzle No. 2 is brought into operation; and for highest speed nozzle No. 3 is brought into play in connection with the first two. In reducing speed No. 3 is first cut out and afterward No. 2 and No. 1. In design this carbureter employs a separate float chamber with the float controlling the fuel level in the spraying nozzles. From the float-chamber fuel is led to three nozzles, each in its own Venturi air tube. One of these nozzles is provided with an adjusting needle, the movement of which is limited to less than a full turn, and the air passage around this nozzle is always open. The other two air passages are closed at the top by check valves, which are controlled by a cam acting in unison with the throttle valve, so that adjustments are made at the factory and proper nozzle sizes fixed upon, leaving only the slight needle valve adjustment by which compensation may be made for variations in altitude, fuel or atmospheric conditions.

The same attention to detail which is to be found in the motor is also present in the design and construction of the clutch, gearset, rear axle and running gear. Annular ball bearings are employed throughout from the gearset to the wheels, on all models except the larger, which have conical roller wheel bearings.

TESTING THE HARDNESS OF METALS

EDITOR'S NOTE—The following paper will be read by A. F. Shore at the meeting of the Society of Automobile Engineers in Detroit next week.

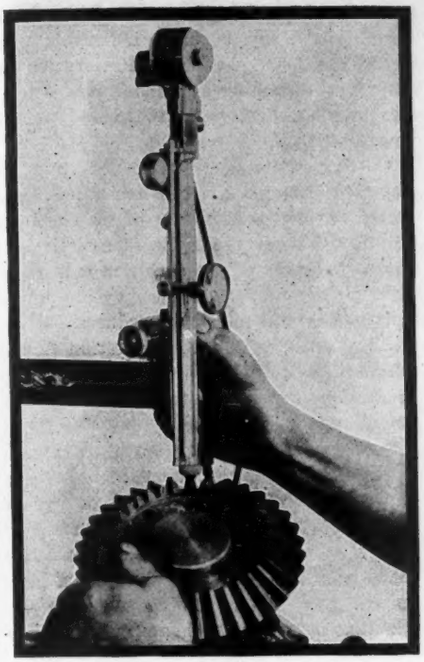


FIG. 1—TESTING GEAR WITH SHORE SCLEROSCOPE

WHEN we ask one another what is hardness? we offer a number of theories which will usually not agree. The stone age men knew that hardness bore a certain relation to strength, flint being preferred to some other kinds of rock. Realizing, however, that flint was a harder substance than necessary for ordinary purposes, and that its use was limited by its brittleness, men naturally sought something which was tougher, though less hard; and thus followed the bronze age. But bronze was too soft to answer most purposes, and for ages much thought was expended to discover some way of hardening it, with little success. Relief came with the iron age, and, finally, with the steel age. It is hard to tell just how old this latter age is. It was always a mystery in the earlier days why steel hardened when heat treated.

Naturally, scientific men tried to devise means for measuring hardness. Perhaps over 100 years ago a diamond scratching machine was brought out in Germany. It was later developed by Professor Turner, of England, about 25 years ago, and still later by Jannettaz and others. In the older days it was generally agreed that the right way to measure hardness was by some way of cutting the specimen.

In fact, this idea was entertained until about the beginning of the last decade, when Professor Brinell apparently realized that the cutting or scratching test bore uncertain relation to known hardness of metals, and devised his famous ball test method, in which a small steel ball is pressed into the specimen to be tested, under a known hydraulic pressure. He assumed that the true tests were rigidity and resistance to penetration. The hardness readings were obtained by dividing the pressure, expressed in kilograms, by the area of the spherical indentation in square millimeters. The pressure used was 3,000 kilograms for the harder steels. The figures obtained thus were inverted or larger for the softer metals; although there are, of course, other methods of calculation which will allow the readings to increase with the hardness. Mr. Sandburg, of Europe, gets these results by dividing the volume of depression by the pressure. The ball method, a practical help to engineers, was the first by which hardness could be measured by a machine, although Prof. Foppl, a German, in 1897, showed that two metals could be forced together so that their hardness could be compared. If their hardness were the same, both would receive an indentation of the same depth.

Owing to the fact that Brinell was obliged to use a small steel ball against the metals to be tested, his instrument had limitations in testing the most hardened metals. This condition attracted the attention of the writer, as well as of Professor Hughes and Colonel Kryloff, of England.

Hughes and Kryloff worked on the basis that the harder steel becomes the more it will resist the flow of magnetic lines of force, an electric device having been constructed to take advantage of this principle. The objection to this method was that the cross-section of the piece to be tested had to be very carefully observed. Likewise, a slight crack in the piece would show false readings, higher hardness. These things may have been compensated for by the use of great care, but it was eventually found that such elements as manganese would give high hardness readings on metals which were perfectly soft, and no tests at all could be made on non-magnetic metals.

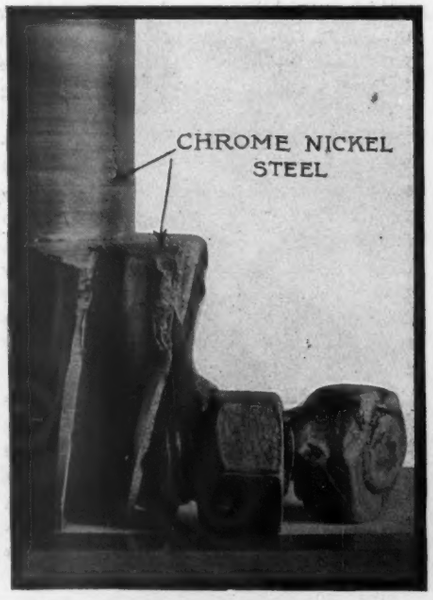


FIG. 2—POOR MATERIAL AND ILL-TREATED

FIG. 3—BADLY WORN STEERING ARM BALL

The writer devised the scleroscope, the operation of which depends upon the fall and rebound of a very small tup hammer, so balanced in relation to the striking area, its weight and height of fall, that it is capable of overcoming the resistance to penetration of the hardest tool steel obtainable. The hammer is about ¼ inch in diameter and ¾ inch long, and weighs about one-twelfth ounce. The height of the fall is 10 inches. The striking point is 1/64 inch in diameter, and blunt convex in form. The material first used for the hammer was high carbon steel, and on striking other hard steel this hammer developed an impact of over 500,000 pounds per square inch, exceeding the elastic limit of any hard steel. It may seem surprising that a steel hammer would be expected to cause a great number of indentations in other hardened steel. But the explanation is very simple: The point of the scleroscope hammer was greatly superhardened by allowing it to strike a number of times on the same spot of a hardened steel block, the result being that the superhardened point of the hammer became capable, without losing its form, of penetrating hardened steel which was not superhardened. Several hundreds of the instruments were put on the market with all-steel hammers, but as any steel must wear in time, these all-steel hammers would finally run out of standard. A diamond point is now employed. Diamonds, when

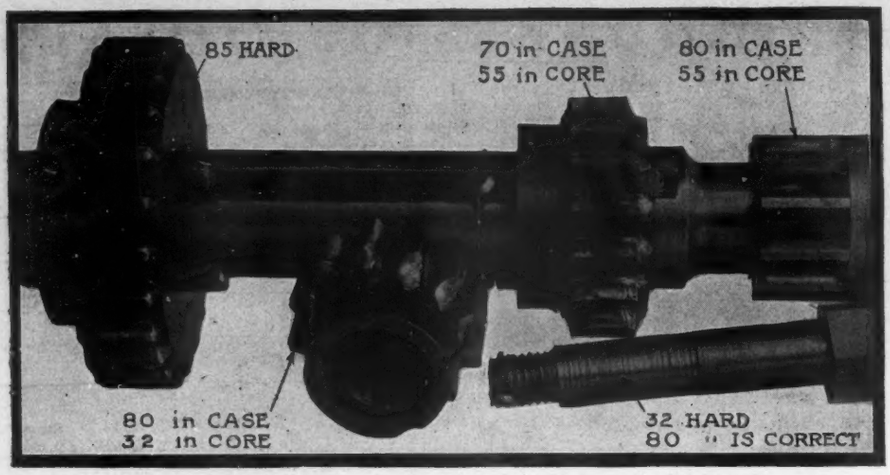


FIG. 4—LAY-SHAFT AND CLASH GEARS WHICH FAILED TO MAKE GOOD

properly selected, will last for many years.

An almost complete set of hardness standards for various parts of motor cars has already been promulgated. These standards were gained by the practical method of trying out parts of various kinds of steel of predetermined hardness, under long and severe service. While this method is one resting on bedrock, it does not necessarily yield such data as will greatly assist the metallurgist and engineer in a variety of other ways in the course of complex duties. Some eminent American and European engineers have failed to understand certain conditions in metals, on which the scleroscope and the ball test agreed, but on which the sclerometer—the diamond-scratching machine—and Foppl's test of forcing two metals together, as well as the Keep drill test, disagreed. Professor Turner, of the University of Birmingham, an authority on hardness, has recognized these several contradictory manifestations of hardness, but has not made an explanation, saying merely that much information is here lacking. This information is lacking, and it is just the information that every engineer should be in possession of. Undoubtedly all that is lacking is an understanding of some law or key which will explain the peculiar conditions as we find them.

Perhaps one of the things which has always been confusing is the claim that there are a number of different kinds of hardness. These are classified as follows: Tensile hardness, cutting hardness, abrasive hardness, elastic hardness, static hardness and shock hardness. Tensile hardness is supposed to be due to an increase of strength in a metal after cold-rolling, without increasing the hardness as measured by the several scratch and drilling methods. Cutting hardness is based on the fact that if brass shows the same hardness as copper, in some instances the brass will cut the copper, but the copper will not cut the brass. Abrasive hardness is usually seen in materials which, according to the scleroscope and ball tests, show a low physical hardness, but which cannot be cut by tools of superior hardness; while the sclerometer, or drill test, gives high hardness readings. Elastic hardness is supposed to be what the scleroscope measures. The shock hardness is also what this instrument is alleged to measure, while the static hardness is what the ball test measures.

According to my researches, there is but one kind of hardness which is really important, and for this final decision the American motor car engineers deserve a large share of the credit. The writer has merely endeavored to properly explain why the findings of the motor car engineers are correct. This kind of hardness is the one which may be defined as rigidity and resistance to penetration or deformation. It really does not matter whether a specimen can be filed or not, as long as hardness consistent with strength can be obtained. There is a close relation between the measured hardness and the elastic limit. Possibly this may be called tensile hardness, but it is not necessary to so call it.

Auchey has suggested the term brittle hardness. Perhaps there is room for such a term as applying to carbon tool steels or any other steel not capable of taking a permanent set before fracture. It seems the term would be useful in differentiating between materials that are tough-hard and those that are brittle-hard, assuming that the hardness in each instance is the same. Tough-hardness, if we may use this term, is one that can usually be obtained with steels alloyed with nickel, chromium or vanadium, and with pure low carbon steels having just enough carbon to harden up to a certain point high enough to include them in the category of motor car steels of the higher tempers.

Take an alloy-steel, which has considerable tough-hardness when properly heat-treated; when overheated or soaked in the fire too long there will be a drop in its hardness as compared with the highest hardness obtainable, as shown by the scleroscope; yet it may not be fileable in the least.

If parts made of plain carbon steel are casehardened, it is understood that the hardness should be up to about 100. When parts go to the inspector to be tested it may develop that there are two pieces which show, say, 90 hard, indicating that there has been chemical deterioration or improper quenching and simultaneous temper-drawing, due, perhaps, to the use of overheated oil.

Cutting tests are influenced by the abrasive element, attrition resistance, in a metal, which is strictly of a chemical origin. Whenever the file is used it will show something of the sorbitic, or martensitic condition; yet the file may absolutely ignore the true physical hardness. Without the file it would be a question in the mind of the inspector as to how the drop in hardness from 100 to 90 was brought about. If he takes the file and makes it bite, a sorbitic tendency is indicated, and it is certain that the quenching has been improper and a certan amount of temper drawn. It may be that the parts will harden up to the standard when quenched properly. If the part is file-hard, a martensitic tendency is shown, and it is certain that deterioration has occurred in the fire, which may be from two causes, chemical deterioration, due to excess of sulphur in the cement, or overheating for some length of time.

Casehardened parts, when overheated and crystallized, although file-hard, often show a hardness under the scleroscope as low as 60. Obviously such parts would fail in service. These drops in hardness due to deterioration by overheating or overexposure to the heat, will be found to exist in almost any kind of steel, whether tool steel or alloy construction steel. The scleroscope is used as a means of calibrating the pyrometer in general.

Having reviewed the situation of the hardness testing problem, we can proceed to practice in this comparatively new branch of metallurgy. The following is a list of hardness standards now in use by motor car engineers, having been obtained by several of the leading manufacturers, who worked independently and came to conclusions agreeing within 5 per cent:

Frames, chrome nickel steel, 40 to 45 hard—represents an elastic limit of 75,000 to 90,000 pounds per square inch; plain carbon steel, 34 to 40 hard—represents an elastic limit of 60,000 to 75,000 pounds per square inch.

Axles, chrome nickel steel—.35 carbon—40 to 50 hard.

Crankshafts, chrome steel—.35 carbon—heat-treated, 45 to 55 hard. When the hardness is as low as 40, as careful experiments prove, the elastic limit is not only too low, but the rate of wear is very fast. A hardness of 65 is safe, being only a medium spring temper, but, of course, it is usually difficult to get this, and it is not absolutely necessary. When made of carbon steel the resistance of crankshafts to wear will be in proportion to the hardness. However, when the hardness is only 40,

and the manganese and silicon contents are high, the resistance to wear is improved without increasing the hardness, although the elastic limit is always in proportion to the measured hardness.

Transmission shafts, square, chrome nickel or vanadium steel, 55 hard. When of plain steel, the same hardness, but the shafts should be of larger dimensions.

Transmission gears—The hardness specified for these parts runs from 60 to as high as 90, depending on the character of the steel used, as well as on the stresses imposed. The standard strictly adhered to by manufacturers of guaranteed gears is 80 to 85, when chrome nickel steel of good quality is used. When the hardness is up to 88 there is little danger due to brittleness. But when it is up to 90 breakage on corners occurs. Therefore, in sliding gears 85 seems to be the proper hardness.

Starting-crank jaw, 60 hard.
Pump shaft, 70 to 80 hard.
Piston pins, cold drawn steel tubing—case hardened—95 to 100 hard.
Steering arms, 90 hard on the friction surfaces.
Ball joint bearing surfaces, 55 to 75 hard.
Valve lifter roller pin, 60 to 65 hard.
Clutch shaft master gear, 70 to 80 hard.
Exhaust cams, 80 to 85 hard.
Valve lifter roller, 85 to 100 hard.
Inlet cams, 85 hard.
Fan cones, 70 to 75 hard.
Ball races, 85 hard.
Valve heads, 50 to 60 hard.
Camshafts, 80 to 90 hard.
Steering worms, 70 to 80 hard.
Thrust and ball-bearing rings, 80 to 95 hard. The lower hardness is confined to tough alloy steels, showing a high attrition resistance; the higher applies to plain steel after drawing temper.
Engine valve plungers, 90 to 100 hard.
Cones, 70 to 80 hard.
Keys, etc., 75 to 80 hard. This is a temper somewhat higher than that of piano wire, and is regarded as a high spring temper, making shearing practically impossible.
Nuts—special hardened—90 to 100 hard.
Screws and bolts, all 40 to 50 hard. It is possible to produce case-hardened nuts measuring from 90 to 100 hard. Screws and bolts ordinarily run from 20 to 35. When screws and bolts are subject to shearing the resistance offered will increase 95 per cent for each increase in hardness of 100 per cent. Bolts are frequently subjected to undue strain through the use of large wrenches, but when they are hardened they offer considerably more resistance, and they retain their rigidity to a nearer approach to the elastic limit, which latter condition is also advanced by heat treatment.

The writer has collected a lot of leaf springs made of different kinds of steel, such as are used by different motor car manufacturers, and which have failed in service, either by sagging or breaking. The idea was to ascertain, if possible, the most notable shortcomings; also to learn whether or not the hardness test would be of service. While considerable work is left to be done in this connection, it developed that in nearly every instance where failure occurred, either by breaking or sagging, a low hardness was indicated.

Springs made of chrome vanadium steel failed by sagging, at slightly under 60 hard, while the other leaves of the same spring, 60 and a little over, did not show evidence of failure, thus indicating by the scleroscope that 60 hard is the lowest safe limit for this steel. Thus far in the case of no springs that have failed in any way have we found an overhardness. Good vanadium steel would be about 80 hard. The writer has come to the conclusion that the proper hardness for ordinary carbon steel springs is from 60 to 75, and for special tough alloy steels from 60 to 80. If the inspector were to select springs by hardness test, his decision would not be always correct, although he could eliminate most of the failures which now occur, as follows: All springs below 60 hard, while they may withstand the bend test usually given a leaf spring, will sag or break after some service. The whole situation seems to point to three things as being necessary: Uniformity of raw material used, control of the heat-treatment, and careful calibration of the pyrometer by aid of the hardness test.

AKRON HAS NO FEARS

Akron, O., July 18—That a large part of the business development of Akron, which depends upon the maintenance of the motor industry, is assured for a good many years to come, is the opinion of A. H. Marks, vice-president of the Diamond Rubber Co., who in discussing the future of the industry said: "We have in this city, as in every other city, those who are skeptical of the prosperity the town enjoys. These are grumblers who predict that one of these days the bottom will drop out of the rubber business with disastrous results. There is little danger of that. I have no doubt it is true that if the motor industry were to parallel the bicycle business in going out of fashion, 60 per cent of the people of Akron would be affected.

"But the motor car has come to stay. There is a great difference between it and the bicycle. You will remember that when a man had a bicycle for a few months the novelty wore off and only the hard work of propelling it remained. There is ease, comfort, luxury and business convenience in the motor car. In the panic of 1907 the tire business was notably the industry that did not feel the effects of the depression. Akron was one of the few cities of the country which did not feel the panic which put such an effective embargo upon the world's business.

"Years will still be required to supply the demand of purchasers of first cars. And when all these cars are in use there will be a steady demand for tires for their equipment. The commercial vehicle is still in its infancy and is having rapid development. It is generally accepted that rubber will continue to be the material for tires to equip commercial vehicles. So I see nothing in the future that will lessen the importance of the rubber industry when applied to motor cars."

A meeting of the stockholders of the Goodyear Tire and Rubber Co. will be held within 20 days, and at that meeting the question of more than doubling the capital stock of the company will come up. The present capital of the company is $2,000,000. Present plans are to increase the stock to $5,000,000. The Goodyear company has had a remarkable year of it, and is constantly growing. During the past year the company has invested almost a million dollars in enlarging the plant and in putting in new machinery. The foundation has just been completed for a new building 400 feet long and 140 feet wide.

The Royal Rubber Co. will increase its capital from $50,000 to $100,000 within the next 20 days. This is one of the new rubber concerns of the city, and it is growing.

A deal was recently put through whereby this company secured possession of all of the old plants of the Empire Mower and Reaper Works. Figures based upon the two proposed increases in capital give the total capital of Akron rubber companies at $32,000,000. Following is a list of the companies and the amount of capital of each: B. F. Goodrich Co., $10,000,000; Diamond Rubber Co., $10,000,000; Goodyear Tire and Rubber Co., $5,000,000; Firestone Tire and Rubber Co., $4,000,000; Portage Rubber Co., $1,000,000; Miller Rubber Co., $500,000; Swinehart Tire and Rubber Co., $400,000; Falls Rubber Co., $250,000; Stein Cushion Tire Co., $200,000; Rubber Products Co., $200,000; Buckeye Rubber Co., $200,000; Metz Clincher Tire Co., $50,000; Standard Rubber Co., $50,000; M. & M. Mfg. Co., $12,00. The total is $31,862,000.

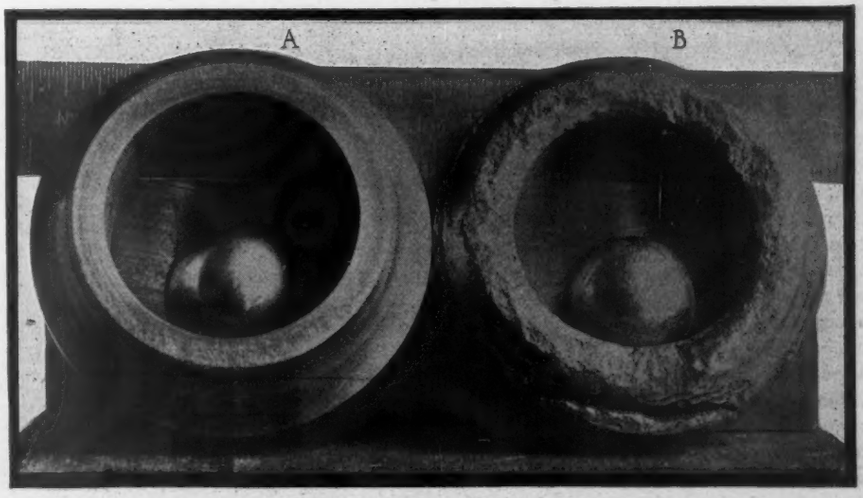


FIG. 5—CUP AND CONE RACEWAYS; A, PROPERLY HARDENED; B, TOO SOFT

From the

MEET at Fort Erie—A motor car meet under the auspices of the Automobile Trade Association of Buffalo will be held at the Fort Erie, Ont., race track, across Niagara river from Buffalo on Friday and Saturday of this week.

Syracuse Club Growth—The Automobile Club of Syracuse, of Syracuse, N. Y., elected twenty-five new members last week, and since then twelve applications have come in. The officers say there are now 540 members. Their mark is 600 by the first of September and 200 more by the first of next January.

Governor a Club Man—Governor Herbert S. Hadley has been made an honorary member of the St. Louis Automobile Club because he is the first executive of the state of Missouri to own and operate his own car. Governor Hadley is an enthusiastic supporter of the good roads movement which has taken possession of the state and he declares that the motor car has done more than anything else to promote highways.

Million-Dollar Job—Out of the million dollars' worth of work now being done on the highways in the state of Washington, $125,000 is being spent in Spokane county alone. There now are three state-aid roads being constructed in and around Spokane. The north or Regal road is approximately 2 miles in length and is being built of oiled macadam. Work on the second road known as the Spangle road, is rapidly nearing completion and also will be constructed of oiled macadam.

Omaha Sure of a Track—Plans have been completed by the Omaha Motor Club for the construction of a 1-mile motor track at Omaha, and it is expected that dirt will be flying shortly. The track will have an enclosure 800 feet across and 2,183 feet long. The track will be 80 feet wide and will be widened to 90 feet at the turns, which will be graded to 36 degrees. A grand stand to seat 3,500 and bleachers for 2,500 more will be built. If the venture proves a success it is planned at a later date to enlarge the track to a 2-mile course. The necessary money to finance the project has been pledged and the track will be completed by August 15.

Waupaca Club Formed—The Waupaca County Motor Club has been organized in Wisconsin, with headquarters at Waupaca, Wis., and Dr. T. E. Loope, of Iola, has been elected president. The club was formed directly as the result of the influence of the first Wisconsin state reliability tour held by the Wisconsin State Automobile Association, July 18 to 23. Waupaca was one of the principal cities on the route. The other officers are: Vice-president, J. F. Jardine, Waupaca; secretary and treasurer, Harry E. Gordon, Waupaca; district vice-presidents, L. Cole, Clintonville; R. J. Bestul, Scandinavia; C. F. Crane, Weyauwega; Dr. Irvine, Manawa, and F. R. Smith, New London. The officers constitute the board of directors. The charter membership consists of forty. Good roads and other legislation will be a principal object of the organization's endeavor.

STUDEBAKER CAR USED AS MOTOR BUNGALOW BY ACTRESS

First Sod Turned—Augustus G. Porter, president of the Automobile Club of Niagara Falls, recently turned the first sod of the Niagara Falls-Buffalo boulevard, in the presence of a party much interested in the project. After Mr. Porter had performed his part each took the bronze spade and turned a sod, making a short speech.

Concrete Highway Planned—Owners in the territory between Fond du Lac, Wis., at the lower end of Lake Winnebago, and Neenah-Menasha and Appleton, at its head, are planning to build a concrete highway along the west shore of the lake to connect these cities. The Wisconsin state reliability tour passed over this route this week and found the roads in terrible condition and this has stimulated the project. The promoters plan to use convict labor, or have inmates of the workhouses in various counties do the work of fixing the roads, under state supervision.

Agitation in Oregon—The good roads agitation in Oregon, coupled with the work being done by the Portland Automobile Club and the Oregon Automobile Association, is providing Oregon with a system of boulevards that within a few years will be surpassed by none on the Pacific coast. Already a number of roads leading out of Portland have become famous for their scenic beauties and a day's outing in a motor car is becoming the fashion in Portland. With one good road leading to government camp, but 3 miles from the summit of the Cascade mountains, and another leading to the coast at Tillamook, Portland has every variety of attractions for the tourist. A pathfinder car of the Portland Automobile Club was sent to Astoria last week where the work of mapping out the roads in the vicinity of Astoria will be undertaken and later printed in the tour book.

Unique Distinction—St. Louis county, Mo., claims the distinction of having spent within the last year more for road improvements than any county in the United States, and the most flattering part is the majority of the improvements were due to the insistence of motorists. The fact is the more noteworthy when it is taken into consideration that the city of St. Louis is not part of the county, whereas a majority of the large cities of the country are included in a county. In the last 3 months St. Louis county has paid out $84,000 for road improvements. The judges of the county court at Clayton, the county seat, declare they have spent more for the building of new roads and the improvement of old ones than has any other body in the country.

Block Signal for Motorists—The block signal has now been extended to protect motor cars. At a crossing in South Plainfield, N. J., the Lehigh Valley railroad has installed banjo signals, which indicate "Danger" automatically, whenever a train is approaching. These are entirely separate from the regular railroad signals, and are operated purely as a safeguard for vehicles. The automatic bell, which has announced trains for years, is not abandoned. It will ring as usual. The new device is supplementary to it and is designed particularly for motor cars. A banjo signal is so named because of its shape. It has the appearance of a banjo standing straight up on its small end. In the center of the drum is a round opening, which is covered by a red disk when a train approaches. Above this is a smaller

Four Winds

opening for illumination at night. As a warning a red light appears here at night, just as the red disk appears below in the daytime.

Ohio's June Receipts—The report of the Ohio state registrar of motor cars for the month of June shows that 2,378 cars were registered at a cost of $11,672 and 450 chauffeurs received licenses. Manufacturers and dealers to the number of twenty-two were registered. The total receipts of the office for the month were $13,081.50. Up to July 1, 27,600 sets of number plates were distributed.

Doing It Right—Plans are being completed for a meeting of the Northern Indiana Good Roads Association to be held in Elkhart, Ind., July 29. M. E. Eldridge, spokesman for the good roads division of the department of agriculture, at Washington, will be the principal speaker. Governor Marshall has been invited to address the convention in the interest of good roads. The Elkhart County Good Roads Association has agreed to send out 10,000 invitations and a large attendance is expected.

Motor Bungalow—The motor car has solved the vacation problem for many people. They have at the door a magic carpet to take them where they will. Miss Beatrice Priest, an actress, has turned a Studebaker into a little hotel all by itself. Finding all the hotels along the shore crowded, she determined to use her car as a camping outfit. She took it to the beach at Rockaway and made a seashore bungalow out of it. The car was fitted with an adjustable removable tent top, which was raised at night to permit the placing of cots from the top of the back seat to the top of the front seat, thus affording comfortable sleeping quarters. The interior of the car was equipped with a complete oilcloth covering for use during the bathing hours, making the occupants entirely independent of bathhouses.

Latonia Date Abandoned—Because Homer George, the promoter, was unable to get his drivers together again following the races at Latonia last Sunday, the final program of the race meet scheduled was called off.

Indiana Fees Fall Off—Although there was a decrease in the total receipts of the Indiana secretary of state for the quarter ending June 30, motor car receipts showed a large increase. The fees received from motor car registrations during the quarter amounted to $5,250 as compared with $2,951.50 during the corresponding period of 1909.

Politicians Become Motorists—The Lucas county delegation to the Ohio state republican convention which will convene in Columbus, July 26 and 27, has arranged to make the trip in motor cars. There will be about forty cars in the party, which will consist of 135. It will be the first time that an entire county delegation made such a long journey in motor cars.

Benz Entries for Vanderbilt—Before sailing for Germany on July 12, Jesse Froehlich, managing director of the Benz Auto Import Co. of America, forwarded to W. K. Vanderbilt, Jr., president of the Motor Cups Holding Co., three entries of Benz cars for the Vanderbilt cup race to be held on the Long Island motor parkway October 1. Mr. Froehlich named as drivers George Robertson, Eddie Hearne, of Chicago, and Bruce Brown, of New York. When declaring these three cars Mr. Froehlich intimated that he would probably cable from Germany before August 10 the entry of three additional cars for the Vanderbilt. The cars declared are in the 4-C class, between 301 and 450 cubic inches, while the three to be named later will be between 431 and 600 cubic inches.

Another Homer George Meet—The annual race meet which has been one of the sporting features in Columbus, O., for several years will be held at the Columbus driving park July 29 and 30. While not under the auspices of the Columbus Automobile Club the meet will be held under the approval of that organization. Homer George is to be promoter.

St. Louis Aroused—The St. Louis Good Roads Association has begun active preparations for the national good roads convention to be held at St. Louis, Mo., August 6-8. At a meeting this week the necessary committees to carry out the plans for the entertainment of the convention were appointed, and other details were arranged. John H. Gundlach, president of the city council, was elected chairman of the committee on reception and entertainment; Roy F. Brittin was elected vice-chairman; Goodman King, second vice-chairman; J. D. Ables, treasurer, and Robert E. Lee, secretary. Every member of the various committees is an enthusiastic motorist, a majority of them being connected in some way with the motor industry.

Means a Motor Speed Path—The Manitowoc County Automobile Club, of Manitowoc, Wis., is considering a good roads project, which if successful will mean a new motor road in eastern Wisconsin which could be devoted to speed events when desired. Members of the club, backed by business men, plan to build a new road from Manitowoc to Two Rivers, a distance of 7 miles, along the bluffs of Lake Michigan's west shore. W. O. Hotchkiss, director of the highway division of the Wisconsin geological survey, has promised his assistance in bringing the project to fulfillment. The road will be semi-private in order that the club may have regulating privileges and set it aside for a speedway at various times.

The Youngest Tourist—There journeyed into Atlanta, Ga., the other day, driving a two-cylinder Reo J. A. Arendall, of Fort Worth, Tex., his wife and a 9-months-old girl baby. They had been 7 months on a tour of the south, starting from Fort Worth when the baby was 2 months old and driving over the roads that made Glidden tourists turn pale and profane and left the Journal-Herald runners calling for help. Never before in the south has a child of that age been asked to make such a tour over such roads. And that there was either baby or car left at the end of the trip is a marvel. But both were excessively alive. The baby was as fine and healthy a specimen as is often seen, brown as a dead leaf and hard as steel. Arendale sells barbers' supplies and travels the whole south, with his wife and baby, in a tiny motor car. The car was in remarkably fine shape.

Beach at Galveston, Texas, Where Meet Will Be Held Early Part of August

The Motor Car Repair Shop

Hints for the Amateur

EVEN in so simple an operation as that of jacking up a wheel of a motor car grievous errors are often made by the amateur and junior repairman, and it is hoped that a few words and an illustration or two on the subject will be of value to those who are in need of such information. It is often found when an attempt is made to jack up a front wheel that, in many cases, it is impossible to get a jack under the axle, and the inexperienced is quite liable, under such conditions, to pick out a place for the jack that will be very impractical. In jacking up a front wheel it is a good precaution to first set the emergency brakes of the rear wheels, to eliminate the danger of having the car roll off the jack while the axle is raised from the ground. Neglect of this precaution has resulted in broken steering knuckles and bent spindles, due to the axle falling while the wheel was removed; it has caused the ruin of a number of inner tubes and casings by having the jack slip and the rim come down heavily upon the deflated tire; and should an operator be in the act of removing a tire lug from the bottom of the wheel when the jack gives way, it may cause the loss of a few fingers.

One of the safest places for the jack when it is desired to raise the front wheel of a car is under the nut N, Fig. 1, on the end of a spring-clip; and the only objection to this location, that of damaging the thread at the end of the clip, can be overcome by placing a small piece of wood between the ends of the jack and the clip. The next best position, and the most convenient, is just in front of the spring saddle, as shown in the illustration. If the spring is horizontal at this point it may be used quite safely in operations, such as testing the wheel bearings or changing a tire. In all cases where a wheel is to be removed blocks should be placed under the axle. In Fig. 2 a wrong and a right method of jacking up a rear axle are indicated for the benefit of the thoughtless.

The very wrong method consists in placing the jack, K, under the truss-rod and bending it as illustrated. The proper place for the jack under the rear axle is either directly under the axle casing at the point P, or thereabouts, or under the lug to which the end of the truss rod is fastened, as shown by the dotted outline O. By placing the jack under the truss-rod much damage to the rear axle mechanism may be brought about. If the rod is bent, crystalization is quite liable to take place, causing the rod to break should a severe strain be put upon it, and as this is just the time when it is designed to be of value and reinforce the rear axle casing, the result might be a severely strained or broken

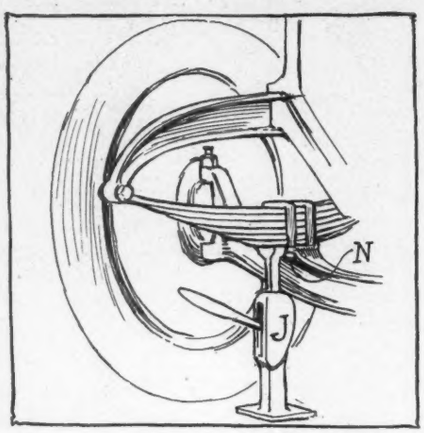


FIG. 1—JACKING UP A FRONT WHEEL

casing or flange connection. If, on the other hand, the rod is flexible, elongation will take place, and if not properly readjusted, misalignment of the rear axle mechanisms will be brought about, with eventually the same or other evil results.

Replacing Pressure in Supply Tank

When the supply tank of a motor car using pressure feed to the carbureter is refilled with gasoline, most motorists use the hand pump provided to replace sufficient pressure in the tank to get the motor started. Generally there is enough gasoline in the carbureter at all times to run the car for several minutes, in which time sufficient pressure should be forced into the tank through the pressure feed from the exhaust in the regular way so that it should rarely be necessary to use the hand pump. On some cars employing pressure feed, the hand pump is so seldom used that the washers therein dry up, and when it does become necessary to use it it will not work. In such cases a foreign contemporary suggests that the desired results can be obtained by temporarily plugging the outlet of the exhaust pipe and then cranking the motor. This will quickly create excessive pressure in the exhaust pipe, which will be conducted through the regular pressure piping to the supply tank. Thus a few turns of the crankshaft of the motor will be just as effective as many strokes of the pump, when in good order.

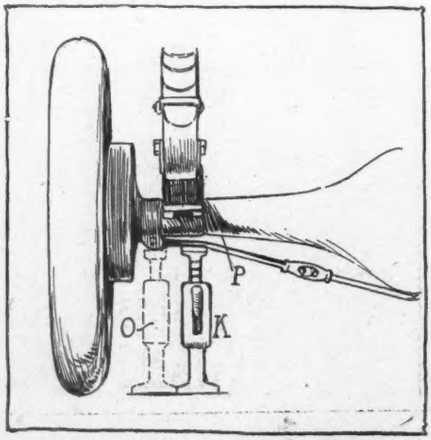


FIG. 2—JACKING UP A REAR WHEEL

Makeshift Tire Shoe

One of the most harassing kill-joys to the motorist who is driving in the country is the fear that one of his tires is about to blow out while he is without a blowout patch or other suitable means for making a satisfactory repair. The experienced motorist never will take chances on being stalled on the roadside or having to ride in on the rim for the want of suitable tire repair equipment. As we all are inclined to be negligent at times, the recent experience of a local motorist may be of interest. A blowout occurred out in the country many miles from a source of supplies. An inside blowout patch would have made possible a very effective repair, but there was nothing of the sort in the car, and the driver decided to wait for a passing motorist, in hopes of borrowing this necessary article. Being an ingenious person, he did not wait long before a plausible idea shaped itself in his mind, and, leaving instructions for the rest of the party to hail the first car that might happen along, he went to the nearest farm house and managed to secure an old boot. From this a suitable blowout patch was cut, placed inside of the casing over the hole, and, being of generous dimensions, enabled the party to be under way in a very short time. The hole in the casing was quite large, and an outside patch also was made from the same boot, to prevent the entrance of stones and dirt. The repair proved very successful, and put an end to what might have proved a long wait.

To Clean the Muffler

To clean the muffler of a car without removing and dis-assembling it, a fairly good job can generally be done by simply tapping it all over the outside with a wooden mallet or the like, and then running the motor with the throttle wide open for a few seconds, cutting out the ignition for several revolutions, and then switching it on again so that the muffler explosions will take place. The tapping loosens up the carbon or soot which clings to the inner portions of the muffler, and the explosions drive it out. The muffler explosions are brought about by allowing a number of charges to pass unignited through the cylinders into the exhaust pipe and muffler, where they may be ignited by the flames from the following charges which are ignited in the cylinders when the ignition is switched on again.

Current Motor Car Patents

Puncture-Proof Tire—No. 960,119, dated May 31; to Howard S. Shafer, Nazareth, Pa.—This patent covers a tire construction provided with anti-skidding and puncture-proof means as shown in Fig. 1. It consists of one series of rivets R molded in the thread portion of the tire with their heads disposed beneath the surfase as illustrated and their stems extending flush with the outer surface, and a second series of longer rivets S arranged in the thread portion of the tire with their heads disposed beneath and alternating with those of the first mentioned rivets, their stems also extending flush with the outer surface of the thread portion.

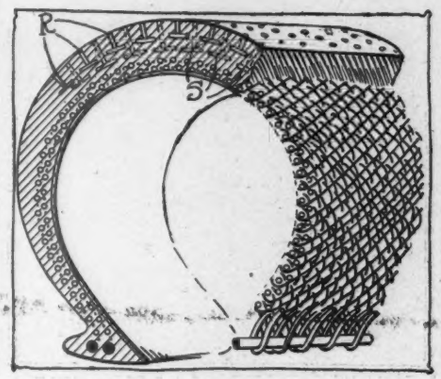


FIG. 1—PUNCTURE-PROOF TIRE

Ball-Bearing Universal Joint—No. 961,634, dated June 14; to Samuel C. Moorehead, Cleveland, O.—This patent relates to a ball-bearing type of universal joint to take the place of the plain bearing type now extensively used on shaft-driven motor cars. It comprises a central connecting member, M, Fig. 2, formed of two integral semicircular plates having ball-races R on opposite sides near their spherical peripheries, ball retainers R carried by the plates opposite the recesses, shaft sections S, adapted to receive the plates of the central member, ball-races on the opposite inner sides of these shaft sections, balls B, in these races, and a spherically oil casing C rigidly carried by the spherical portion of one pocket or shaft section and snugly fitting the periphery of the spherical portion carried by the other shaft.

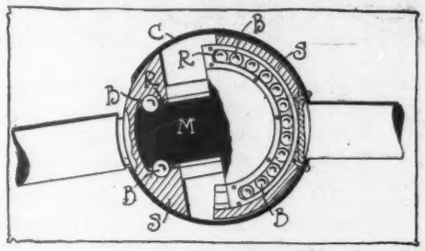


FIG. 2—BALL-BEARING UNIVERSAL JOINT

Automatic Gas Ignition—No. 962,113, dated June 21; to Louis G. Bartlett, Somerville, Mass.—This patent relates to features of an automatic means of igniting and regulating the acetylene gas headlamps of a motor car from the driver's seat. The equipment, as arranged in Fig. 5, is comprised of an acetylene gas tank A, a shut-off valve V, gas piping G, a gas and ignition control mechanism M, a battery B, a vibrating coil C, and the necessary wiring between the battery coil and the electrodes on the burners of the lamps L. The gas-tank A is attached to the frame of the car opposite the driver's seat, so the driver may by stooping down open or close the shut-off valve V. On operating the ignition and gas-regulating mechanism M, the primary battery circuit, including the wires P, is completed, and the piping G opened, causing electricity and gas to flow through their respective systems. The flow of primary current through the coil C sets it to work, and high-tension currents pass through the wires W, causing sparks to jump between the electrodes which are rigidly clamped to the gas burners. These electrodes are so positioned that the sparks pass directly through the streams of gas which issue from the burners and ignite it.

Adjustable Sleeve for Bearings—No. 962,059, dated June 21; to Cephas I. Shirley, Newark, N. J.—This patent covers a means of longitudinal adjustment for the propellershaft and pinion of a bevel gear-driving mechanism such as is commonly used in shaft-driven motor cars. As illustrated in Fig. 3, it is a combination of a roller bearing of the shaft S with its pinion P keyed to it; of a bearing sleeve L fitted to the shaft which is notched at one end to embrace the end of the feather key K of the pinion-gear, and threaded at the other end for the collar C. The adjustable collar C is designed to prevent end movement of the sleeve upon the shaft, and it operates between an abutment at the end of the roller bearing and the ball-thrust bearings in front.

Valve-Operating Mechanism—No. 962,159, dated June 21; to Frank J. Miller, Cleveland, O.—This patent relates to an internal rocker-arm arrangement for the operation of valves on one side of a T-type motor; the object being to run both sets of valves from a single camshaft. The method employed is illustrated in Fig. 4, and consists in arranging the rocker-arm A which is fulcrumed at the point P across the lower end of the cylinder so it can operate the pushrod R without interfering with the movement of the connecting-rod C. The cams on the camshaft S operate the valves on one side directly through the pushrods, and the valves on the other side are controlled through the rocker-arms and pushrods. The advantages of this construction lie in the elimination of one camshaft, as above stated, and the gearing necessary to operate it; and simplification of the crank-case construction is also greatly facilitated by this arrangement.

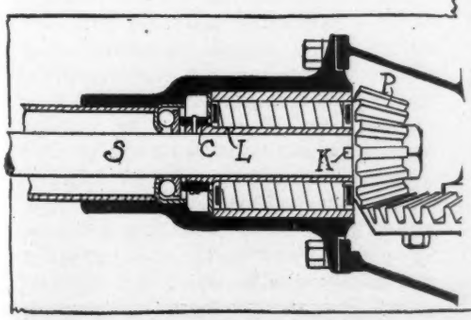


FIG. 3—ADJUSTABLE BEARING SLEEVE

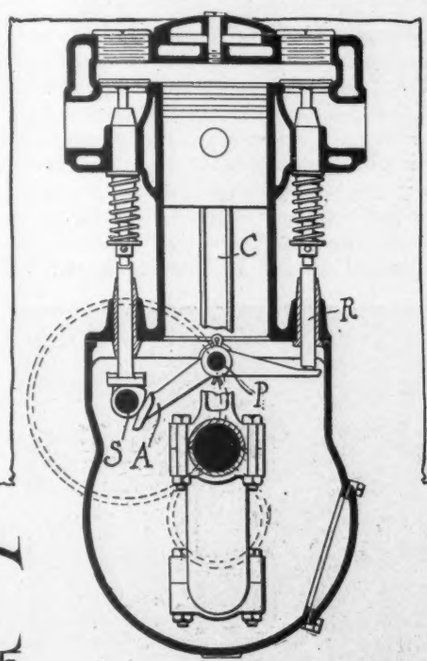


FIG. 4—NEW VALVE OPERATING MECHANISM

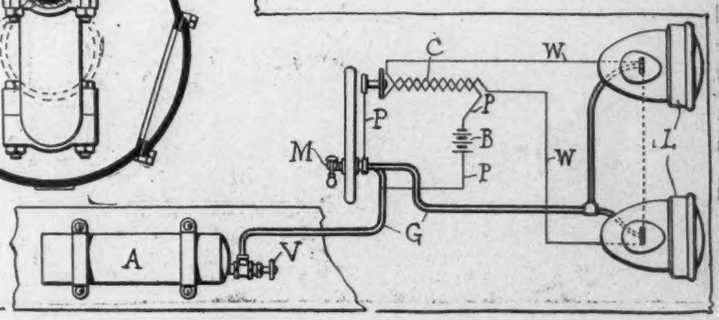


FIG. 5—AUTOMATIC GAS IGNITION

New $500,000 Factory of the Hudson Company of Detroit, Which 300 Men are Engaged in Buil

Among the Makers

Fosdick Resigns—Harry Fosdick announces that he has tendered his resignation as vice-president and treasurer of the Hol-Tan Co., of New York.

Michelin's New Treasurer—R. E. Glass, who early this year was made a director of the Michelin Tire Co., Milltown, N. J., has just been elected treasurer, succeeding E. Fontaine, who resigned recently.

New Akron Concern—The Superior Rubber and Mfg. Co. of Akron, was incorporated with a capital stock of $10,000 to manufacture tires. The incorporators are J. M. Hyatt, E. N. BeSaw, R. E. Nicol, W. J. Holtenstine and A. B. McAllister.

Another St. Louis Car Maker—A new company for the manufacture of cars has been incorporated and authorized to do business in the city of St. Louis. This concern will be known as the Banner Automobile Co., and its moving spirit is Russell E. Gardner, president of the Banner Buggy Co. Mr. Gardner says his company has incorporated with a view of putting on the market medium-priced cars, which, he asserts, will be turned out at the rate of 20,000 a year. This will be one of the biggest concerns of the city. However, before the actual manufacture of cars begins, it will be necessary to construct a new plant, plans for which already have been drawn.

Erecting Tire Plant—Nearly $100,000 worth of contracts for the erection of buildings for the Kelly-Racine Rubber Co. were awarded last week, and work has already been started. It is expected that the plant will be ready for operation by November 1.

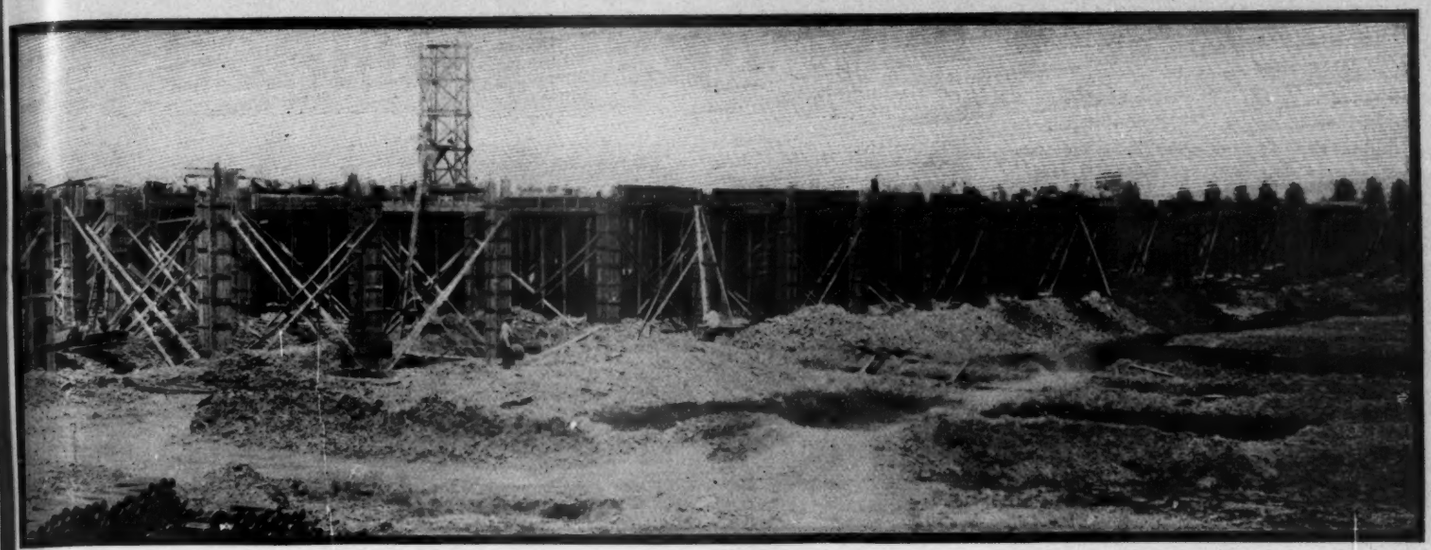
Barnes Succeeds Steenstrup—At the meeting of the board of directors of the Motor and Accessory Manufacturers P. S. Steenstrup, formerly of the Hyatt Roller Bearing Co., Harrison, N. J., retired from membership on the board, as well as secretary of the association. Claire L. Barnes, of the Billings & Spencer Co., Hartford, Conn., was elected as a director to fill the unexpired term of Mr. Steenstrup, and L. M. Wainwright, of the Diamond Chain and Mfg. Co., Indianapolis, Ind., was elected to succeed Mr. Steenstrup as secretary of the association. Fifteen concerns were elected to membership.

Wrong Size Given—Owing to a typographical error in the advertisement for the Parry Auto Co., which appeared in Motor Age of July 7, model 39, combination roadster, was described as having 36 by 3½-inch wheels and tires. This was a misstatement, as the Parry suburban model 39 has 34 by 3½-inch wheels and tires.

Brady Sells His Stock—After negotiations of long standing, James J. Brady has disposed of his interests in the Chalmers Motor Co. to Hugh Chalmers, president of the concern. Previously he disposed of his interests in the Hudson Motor Co., the Metal Products Co. and the Fairview Foundry Co. to the same party, it is said. While the terms are not made public, it is understood on reliable authority that not less than $500,000 changed hands in the various transactions. Mr. Brady resigned last February as vice-president and factory manager of the Chalmers company.

Receivers for Mora Company—Judge Hazel, of Buffalo, has appointed George W. Todd and Harold McGuire, of Rochester, N. Y., receivers for the Mora Co., motor car manufacturer of Newark, N. Y. They furnished bonds in the sum of $50,000 each. An involuntary petition in bankruptcy was filed in United States district court, Buffalo, recently against this concern. Claims against the company aggregate $70,000. The petitioning creditors allege that they furnished the Mora company with merchandise for which they never received payment. The largest creditors are Clum & Atkinson, of Rochester, $25,000;

Women Employes of the Franklin Company Enjoy an Outing



IN BUILDING—PLANT CONSISTS OF EIGHT BUILDINGS, WHICH ARE ABOUT ONE-THIRD COMPLETED

and Dealers

New Process Raw Hide Co., of Syracuse, $16,064.98; W. P. Davis Machine Co., of Rochester, $8,116.14.

Balough's New Connection — Charles Balough, designer of the Brotherton Six, has accepted the position as chief engineer of the Kelly Motor Truck Co., of Springfield, Ohio. Mr. Balough is still connected with the Brotherton Six in a consulting way.

Change of Name—The Wright Wrench Mfg. Co., Canton, O., has changed its name to the Wright Wrench and Forging Co. This company has just moved into its large new factory, covering several acres of ground, which gives ample room for its fast growing business. The new plant includes a forging department.

Outing For E-M-F Men—Accompanied by a brass band, 500 employes, for the most part foremen and department heads, from the seven plants of the E-M-F Co. of Detroit, boarded a special train Friday morning, for a day's outing at Lake Orion as guests of the company. This was a part of a 3 days' vacation given the men with full pay and is a typical Walter Flanders stunt.

Outing for Franklin Girls—The young women who are employed in the factory of the H. H. Franklin Mfg. Co., of Syracuse, N. Y., recently spent a day at Rexford Falls, N. Y., the trip being made in sixteen Franklin touring cars. The party numbered eighty-four, and started from the Franklin factory at 8 o'clock in the morning. The falls were reached soon after noon, and the young women took dinner at the Spring house. The return to Syracuse was made late in the afternoon, a short stop being made at Hamilton to view the campus of Colgate university. The distance traveled was 135 miles. Another recent outing of the young women was by boat to Three Rivers.

Butterfield in the Trade—H. K. Butterfield, United States district attorney at Milwaukee for several terms, will leave the office within a short time to take charge of the western territory for the Kissel Motor Car Co., of Hartford, Wis., in which he is interested.

Flanders Denies Rumor—Walter E. Flanders, president of the E-M-F Co., emphatically denies a story that has gained wide circulation to the effect that he is soon to leave the E-M-F to associate himself with E. LeRoy Pelletier, former advertising manager for the company, in the manufacture of a new style of car. "The story must have been started by some competitor to injure us," says Mr. Flanders. "It is without the slightest foundation in fact." Incidentally Mr. Flanders announces that the company has about completed plans for the manufacture of commercial trucks, which will necessitate the erection of another new addition besides the two now under way.

Saxon Lamp Election—The Saxon Lamp Co., of New York city, has increased its capital stock to an authorized capital of $50,000 and elected the following officers: H. Saxon, president; Smalley Daniels, vice-president; J. S. Taylor, secretary, and J. C. Nichols, treasurer, the above constituting the directors. The company is contemplating moving to Michigan or Indiana, in order to be nearer the factory center.

Another Mitchell Building—A modern four-story building is being erected by the Mitchell-Lewis Motor Co. at Washington avenue and West Sixth street, Racine, on the site of an old two-story brick factory building. The new building will be devoted exclusively to the production of bodies, and marks another advance in the Mitchell policy of building its entire car under one roof, even to tires, which will be manufactured by the Kelly-Racine Rubber Co., a Mitchell auxiliary, which is now building a plant near the Mitchell plant.

INDIANAPOLIS BUSINESS MEN MAKING TRIP TO OMAHA IN AN OVERLAND

Brief Business

PITTSBURG, PA.—The Standard Automobile Co. has added to its force J. A. Stranahan.

Spokane, Wash.—The Inland garage at 1303 Monroe street is distributor for the Glide in this city and the inland empire.

Portland, Ore.—The Smith-Miller Automobile Co. is now located on the east side at Wasco and Union streets. The company will handle the Matheson.

Racine, Wis.—F. H. Miller, of the Mitchell-Lewis Motor Co., has left for San Francisco to take charge of one of the western agencies of this concern.

Chicago—Eugene Zucker, of the Witherbee Igniter Co., of Chicago, is about to become identified with the Heissler Storage Battery Co., also of Chicago.

Tulare, Cal.—Work has been begun on the new garage for Captain Thompson. The building is to be of concrete blocks, and is being erected on the corner of Inyo and J streets, 100 by 20, to cost $6,000.

Tampa, Fla.—Robert Mugge is planning the erection of a factory for the manufacture of cars and repairing of the same. It will be 80 by 250, three stories high, concrete floors and fireproof as possible, to cost about $150,000.

Oshkosh, Wis.—The McKone Motor and Tire Repair Co. has been incorporated with headquarters at Oshkosh, Wis. The capital stock is $10,000. Among the promoters of the company are L. J. McKone, H. J. Ziebell and Robert G. Johnson.

Weehawken, N. J.—The Hamilton Auto Co. has been formed to do a general motor business, with a capital of $6,000. The incorporators are Hans C. Schulze, William Ihnken and Robert Ihnken, all of 162 Bullsferry road, Weehawken, N. J.

Sturgeon Bay, Wis.—The Dana garage at Sturgeon Bay, which was one of the first to be established in extreme northeastern Wisconsin, has found it necessary to build a large addition, although the present building has been in use only a comparatively short time. Tourists have found the northern Lake Michigan country exceptionally suited for pleasure trips.

NEW GARAGE OF THE POPE-HARTFORD BOSTON AGENCY

Lansing, Mich.—The Michigan Auto Parts Co. has increased its capital from $50,000 to $300,000.

Pittsburg, Pa.—A new top-building company has been formed by J. Joe Feicht under the firm name of the Pittsburg Top Co., with headquarters on Beitler street.

Newark, N. J.—Wallace & De Wild have taken the agency of the Cole for Newark and Essex county for 1911, and will soon open garage and salesroom in vicinity of Halsey street.

Lewiston, Me.—The Combination Tail Light and Illuminated Automobile Number Corporation will manufacture and sell patent tail lights and other electrical or other appliances, etc. Its capital is $150,000.

Fresno, Cal.—Preliminary work has been started for the construction of a garage building at the corner of Tuolumne and I streets. The structure is to be a two-story affair of reinforced concrete, and will be erected by J. W. Hanner & Sons, of the White Motor Car Co.

St. Louis, Mo.—The Beguelin-Buschart Motor Car Co. has taken possession of the building at 4390 Olive street, where it will handle the Selden car and conduct a general repair shop. The company announces also that later it will enter into the business of manufacturing cars.

Jamestown, N. Y.—The Jamestown Wheel and Mfg. Co. has broken ground for a factory, 60 by 120, two stories high, in Celoron, and will manufacture wheels and accessories. The company was organized by men formerly employed in the Salisbury Wheel and Mfg. Co., of Jamestown.

Philadelphia, Pa.—George C. Boldt purchased the property, 1409 Locust street, 22 by 150, adjoining the Bellevue-Stratford garage on the west, and proposes utilizing the site for a large addition to the garage. He has also purchased 1411-13. Both lots, which are 44 by 150, will be utilized as a site for a large garage, which will be six or eight stories in height.

Pittsburg, Pa.—The Duquesne Motor Car Co. has secured the Pittsburg agency for the Beyster-Detroit.

Cando, N. D.—Torrey & Crume have opened a garage here which is of concrete construction and equipped with modern machinery and vulcanizers.

Kansas City, Mo.—The Lake Motor Car Co. has moved from 3320-3322 Main street to Thirty-fourth and Broadway, occupying temporary quarters at the Broadway garage until the new garage is completed fronting Broadway on Thirty-fourth street. The company still handles the Stearns and Premier cars.

Racine, Wis.—Brieth & Pauli, garage keepers at Racine, have completed a large addition to their garage on College avenue, doubling the floor space. This is now one of the largest garages in the northwest, being three stories high and with one of the largest ground floor spaces in any building in this territory.

St. Louis, Mo.—A new company has been incorporated to do business in St. Louis, which claims to have perfected a perpetual storage battery. The company is incorporated for $100,000 with these officers: H. F. A. Spiegelberg, president; R. Goodaler, vice-president; R. H. Murphy, secretary; Max F. Ruler, counsel. It is claimed for the new batttery that no charging device is necessary, its current-producing properties being self-contained.

Rochester, N. Y.—A new corporation known as the Empire State General Vehicle Co., with a capital of $100,000, has been organized to take over the electric truck business of the Rochester Railway and Light Co. The officers are: President, Robert M. Searle; vice-president, Granger A. Holister; secretary and treasurer, J. T. Hutchings. The new concern will erect an assembling plant at Circle and North Goodman streets, to be one story high, 215

Recent Incorporations

Fort Wayne, Ind.—L. C. S. Motor Co.; capital $100,000; manufacturer; directors Charles LaDue, Jeremiah Carmer and C. O. Snyder.

Elizabeth, N. J.—Vandewater & Co.; capital $100,000; to manufacture internal combustion engines, steam engines, automobiles, etc. Incorporators John Correja, Frank C. Vandewater and Edwin Vandewater.

Chicago.—Chicago Jack and Supply Co.; capital $14,000; motor car and general merchandise. Earle L. Robinson, A. E. V. Wright, John M. Timmons.

Birmingham, Ala.—Drennen Motor Car Co.; capital $5,000; general motor car business. Officers, D. M. Drennen, president; W. M. Drennen, vice-president; F. M. Drennen, secretary; H. A. Drennen, treasurer and general manager.

New York.—North Side Coach and Auto Co.; capital $150,000; maintain a livery stable, rent motor cars, etc. Incorporators John J. Fox, Wethered J. Boyd, Frederick A. Orpp, all of New York city.

New York.—Phoenix Sight-Seeing Co.; capital $25,000; manufacture passenger vehicles propelled by motors, etc. Incorporators A. Shapiro, S. Goodman, H. Goodman, New York city.

Announcements

NEW STORE OF THE OVERLAND AGENCY IN ST. LOUIS

by 45. They have secured the agency for the General Vehicle Co., of Long Island City.

Ambridge, Pa.—The Keystone Sheet Metal Co. will start at once to manufacture mudguards and shields at its plant down the Ohio river.

Hyde Park, Mass.—The New England Motor Truck Co. has incorporated for $50,000. The incorporators are: Boynton W. Piper, Harry A. Henderson, Paul F. Spain and F. R. Mullin.

Chester, S. C.—D. P. Crosby and F. M. Hough have formed the Hough Automobile Co., for the manufacture of cars. The plant will be located in the foundry building owned by Mr. Crosby on Gadsden street. The company will manufacture 40-horsepower four-cylinder touring cars and 22-horsepower two-cylinder runabouts.

Dayton, O.—Plans for the erection of a big plant for the manufacture of the product of the newly formed Mead Engine Co. are being drawn and the buildings will be constructed on the west side, several locations being under consideration. The company is composed of Dayton capitalists, and will manufacture motor car gas engines.

Buffalo, N. Y.—The International Automobile League, Tire and Rubber Co., has filed papers of incorporation in the county clerk's office in Buffalo. The capital stock is $100,000, but the company will start business with $50,000. The directors are Alfred C. Bidwell, William Preiss and Charles H. Bowe. The company will manufacture rubber goods of all kinds.

Minneapolis, Minn.—The Regal Motor Co., of Detroit, Mich., will establish a branch in Minneapolis. It will mean the taking over of the Haynes Automobile Co. Articles of incorporation have been filed by the Minneapolis Regal Auto Co., with a capital of $25,000, the incorporators being C. W. Reynolds, H. S. Haynes, J. P. McQuire, E. C. Noyes, T. L. Myhra and C. H. Dickson. Haynes, Grower and McGuire also have filed papers for another corporation, to be known as the Motor Equipment Co., with $50,000 capital.

Pittsburg, Pa.—The Pittsburg-Chalmers Co. has been organized with Ralph G. Kennedy as manager, to handle the Chalmers line in this city. It will be located in a big new garage on Negley avenue near Centre.

Camden, Pa.—The Victor Motor Car Co. will manufacture, rent, repair, buy and sell motor cars. Its capital is $150,000, and the incorporators are Julia H. Harrington, J. T. Harrington, H. C. Ochtiebeed, Dr. J. L. Boogher and Herman Boedecker.

New York—L. B. Williams, formerly a race driver, has joined the selling force of the Westcott Motor Car Co., of Richmond, Ind., and will be located in New York city with the Dunlop-Taylor Motor Co., of 1875 Broadway, which has just taken the eastern territory.

Portland, Ore.—K. W. Kaine and R. W. Green, who formerly were engaged in the motor car business at Uniontown, Pa., have come to Oregon and shortly will go into business at Eugene, where they have commenced to build a garage. They will handle the Buick.

Pittsburg, Pa.—The Hoffman Automobile Co. has opened a big new garage at Bedford, Pa. That company has been in business 6 years with main offices at Meyersdale, Pa. The Bedford plant will be in charge of C. J. Rowe of Meyersdale and H. W. Cunard of Everett, Pa., and will handle the Maxwell, Columbia and Stoddard-Dayton.

Minneapolis, Minn.—The Northland Motor Car Co. has been reorganized. Details were completed last week when George G. Ackley, a banker at Ramona, S. D., purchased an interest in the concern, and will actively engage in the business. Mr. Ackley has been chosen vice-president of the company, and will assume the general management during the coming week. Asa Paine still retains his interest as a copartner, as does W. D. Rightmire, who will continue in the capacity of sales manager.

Dallas, Texas—The Dallas Motor Car Co. has been incorporated with a capital of $20,000. The incorporators are Frank Leahy, W. H. Burt and D. G. Cage.

Seattle, Wash.—Ground was broken the past week for the Seattle Taxicab Co.'s new garage at Ninth and Pike streets. The structure will be built of brick and the cost will be $25,000.

Portland, Ore.—Neate & McCarthy have recently completed their new garage at King and Washington streets, and also have made arrangements to handle the Frayer-Miller trucks.

Nashville, Tenn.—An agency has been opened at Clarksville, Tenn., for the sale of the Marathon under the coöperative name of the Clarksville Auto Co. A. C. Murray is general manager.

New York—The W. M. P. Motor Co., manufacturing motors, and with a capital of $25,000, has been incorporated by L. R. Walton, F. D. Preston, New York city, and L. R. Moody, Bayside, L. I.

Chicago—The Farrington Automobile Co. has been organized by Joseph T. Delfosse, W. H. Farrington, Samuel F. Scott, Joseph F. Muhlke. The company will handle the Columbus electric.

Milwaukee, Wis.—John Joiner, E. F. Reckmeyer and M. E. Main, of Milwaukee, Wis., have organized the Milwaukee Sight-Seeing Co., which has filed articles of incorporation. The capital stock is $10,000.

Lockport, N. Y.—The Niagara Merchandising Co., of this city, has sold to the Peerless Motor Co., of Cleveland, and the Welch Motor Co., of Michigan, the exclusive rights to the sales of the time-saver repair kit.

Buffalo, N. Y.—The Glidden Garage Co. will deal in and repair cars and do a general garage business. It has a capital of $10,000. The incorporators are Oscar Meyer, Mary E. Meyer, Bessie Meyer, all of Buffalo.

Recent Incorporations

New York.—Hazard Motor Mfg. Co.; capital $400,000; manufacturing marine and motor gas engines, etc.; general machinery manufacturing business. Incorporators E. C. Hazard, G. E. Hazard, J. F. Alden, Rochester.

Dover, Del.—Club Car Co. of America; capital $750,000; to deal in motor cars and equipments of all kinds. Incorporators R. P. Buell, Bayside, L. I.; C. H. Stanton, Brooklyn, N. Y.; G. L. Lewis, Whitestone, L. I.; Sydney V. Morris, New York; John H. McCrayhon, Syracuse, N. Y.

New York.—Gotham Motor Car Co.; capital $25,000; manufacture and deal in motors, engines, motor cars, etc. Incorporators William Schuette, Douglas Manor, L. I.; Robert W. Schuette, Douglas Manor, L. I.; Daniel W. Gluck, New York city.

Rochester, N. Y.—Rochester Taxicab Co.; capital $20,000; deal in and rent motor cars, horses and carriages, etc. Incorporators Fred J. Zorn, Harvey R. Wadsworth, Alice Zorn, all of Rochester, N. Y.

Wilmington, Del.—International Pneumatic Auto Wheel Co.; Delaware Trust Co.; capital $1,000,000. Incorporators Charles M. Saulson, Grover D. Edwards, both of New York city; Harry W. Davis, Wilmington, Del.

Legal Lights and Side Lights

MARYLAND TURNED DOWN

THROUGH Highway Commissioner Joseph W. Hunter, Pennsylvania has refused Maryland's overtures for reciprocal relations. In his letter to Motor Vehicle Commissioner John E. George, Mr. Hunter states that no matter what concessions Maryland may make, he has no authority to waive any of the provisions of the Pennsylvania motor car laws. This means that Marylanders who desire to pass through Pennsylvania or go to points north will have to pay the annual $10 license fee. Marylanders will be at the same disadvantage that the laws of their state place upon Washingtonians. Persons in the District of Columbia are refused under the Maryland law a limited license at a reduced price for those who wish to go through Maryland. Thus Maryland seems to be getting a dose of its own medicine in consequence of the Pennsylvania decision. The District of Columbia authorities, because of Maryland's decision, have decided that Maryland motorists will have to pay $2 every time they want to go to Washington or pass through the district. And the motorists of all the states and sections are the ones who have to stand the hardship.

JERSEY IS AROUSED

Measures of reprisal which have been adopted by several states adjoining New Jersey against that state on account of the Jersey statute that makes it obligatory for touring motorists who venture a-wheel upon the sacred soil of the Garden state to take out a license or suffer the various penalties provided by law for just such cases, have aroused Jersey motorists to a pitch they have never reached before.

The feeling against the state of New Jersey on account of the stringent road law has taken concrete shape in Pennsylvania and New York. In Pennsylvania, particularly in the city of Philadelphia, the status of the visiting Jersey motorist is unpleasant. No sooner does a touring Jerseyite enter Philadelphia than he is arrested if he has no Pennsylvania permit. What makes the Jersey citizens froth at the mouth about this procedure, is the fact that any car bearing a New York license is not disturbed in any way in Pennsylvania.

Only recently a fine example of how this practice works was afforded by a case in Philadelphia. A New York tourist who had been spending some time in Jersey and who was equipped with a state license of that state, crossed the ferry and started up Market street. He managed to get three blocks before the watchful officers spied the triangular license tag and descended upon him. Up to the city hall he was taken by the police and a fine as well as payment of the Pennsylvania license fee seemed certain. The prisoner protested that he was a New Yorker and had a New York license. The police asked to be shown, and when the prisoner produced the New York permit, he was instructed to remove the Jersey license and replace it with that of New York. This was done and the prisoner and car were released with the injunction to go as far as they liked. It is such instances as the one recounted that get on the nerves of Jerseyites. Last winter an amendment to the motor law was passed making it possible for non-resident tourists to secure touring licenses in New Jersey for a period of 8 days during one year. These permits may be withheld in the discretion of the commissioner.

CLAIMS HE LOST HEARING

A case of alleged violation of the Delaware state motor law, now pending, has taken on a new phase, Oliver Martin, of Lansdowne, Pa., having made a statement in court that he had been made deaf by the accident. He said he was not so afflicted prior to the time he was injured. Recently William B. Prettyman, while driving his machine down Market street, Wilmington, ran into Martin. Prettyman claims he was running slowly and also that he blew his horn and shouted to Martin, while Martin claims he did not hear a horn and that when Prettyman shouted to him it was too late to avoid being struck. When on the witness stand Martin appeared to be deaf, and in reply to the court he attributed the deafness to the accident. He said before the accident he was not so afflicted, but that he was afterward. The case was continued to enable the production of additional witnesses. Prettyman is charged with violating the section of the law requiring drivers of machines to stop when they are about to collide with pedestrians. Prettyman alleges he took all the precautions possible to avoid the collision, and that he could not stop his car because the street pavement was wet.

IOWA CODE DISTINCTION

The Iowa code which provides that no person shall drive a motor car at a greater average rate of speed than 20 miles per hour, does not prohibit driving at a greater rate of speed than 20 miles an hour. This was decided in the case of Neidy vs. Littlejohn, 126 N. W., 198. It is provoking considerable comment and interest in Iowa.

BLOW AT OHIO LAW

Excitement was occasioned among city officials of Toledo, O., last week when Judge Curtis E. Johnson reversed the decision of the police court and discharged Walter F. Brown on the charge of violating the speed laws of the state. On May 11, 1910, Brown was arrested and convicted in the police court, was fined and sentenced to pay the costs of prosecution. Brown attacked the validity of the law, and appealed to the common pleas court, where the case has been looked upon as a test of the Ohio law. Judge Johnson, in handing down his decision, said: "It is not necessarily a violation of the law to operate a motor car at 15 miles an hour within the city unless the machine is one of those defined as motor cycles. I am of the opinion that at present the word can not be judiciously construed to apply solely and alone to those vehicles which are declared by the statute to be motor vehicles. It is to motor vehicles alone that the prohibition of the statute relates. Indeed, within the exception mentioned in the statute and excluded by its terms, ambulances and police patrol wagons may well be defined as motor cars. To say of a person that his ambulance is a motor car, or of a city that its police patrol wagon is a motor car, would be quite in accord with the current, proper and accepted use of the word."

In other words, the holding of the court was to the effect that not all motor cars are necessarily motor vehicles, and to describe the machine by the use of the word motor car in the affidavit does not bring it within the meaning of the statute. The Ohio statute on the subject reads as follows: "Whoever operates a motor cycle or motor vehicle at a greater speed than 8 miles an hour in the business or closely built-up portions of a municipality shall be fined not more than $25, and for a second offense shall be fined not less than $25 nor more than $50."

More than 200 cases of speeding brought in the Toledo police court on similar affidavits are affected by the holding of Judge Johnson. The case will be appealed to the higher courts for further construction of the law. City Solicitor Schreiber announces that prosecutions will continue under the law, with a slight change in the form of the affidavit, to conform to the ruling of the court, pending an appeal to the higher courts which will be taken in the matter.